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What Is Calculated Risk?

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The views expressed in this article are the author's and are not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

"WE HAD taken a calculated risk and the Germans hit us harder than we anticipated he could."

With these words, in a reply to General Marshall in late December 1944, General Bradley used an expression which is now commonly used in everyday language. Nevertheless, the expression still needs to be defined. Is it a new term? Where is its rightful place in military terminology? What relationship exists between "calculated risk" and the principles of war? What is the difference between a calculated risk and a plain, ordinary risk? What measures must be taken, what factors considered, to make the risk taken a calculated one? Or, is the expression merely a glorified term to be used in the future by unsuccessful commanders to excuse failure, to soften the blow of defeat, or to justify being surprised?

Webster defines "risk," in part, as hazard; peril; exposure to loss or injury. "Calculate" is defined, in part, as to forecast consequences; estimate. "Calculation" means deliberate prudence; studied care; discretion. Obviously, the dictionary definitions are not sufficient to clarify the military term completely. However, they do point the way by separating the meanings of the two words: first, a definite danger, hazard, or peril must exist; second, certain factors must be considered and definite measures taken to provide the discretion or prudence.

Principles of War

The nine principles of war listed by the United States Army—the objective, simplicity, unity of command, the offensive, mass, maneuver, economy of forces, surprise, and security—are basic; great commanders have been and will continue to be guided by them. Their application will, however, vary with the situation. Certain principles overlap and complement each other. Three of the principles—mass, economy of forces, and security—are in a sense contradictory to one another in their application. It is this conflict among these principles which creates the fine balance of a "calculated risk." To clarify this point, Field Manual 100-5, *Field Service Reg-*

The term 'calculated risk' must never be used to excuse failure, to soften defeat, or to justify being surprised. Therefore, commanders must know each nuance of the term, and apply it when making decisions

ulations, Operations, dated August 1949, explains the three principles as follows:

Mass.—Mass or the concentration of superior forces, on the ground, at sea, and in the air, at the decisive place and time, and their employment in a decisive direction, creates the conditions essential to victory. Such concentration requires strict economy in the strength of forces assigned to secondary missions. Detachments during combat are justifiable only when the execution of tasks assigned them contributes directly to success in the main battle.

Economy of Forces.—The principle of economy of force is a corollary to the principle of mass. In order to concentrate superior combat strength in one place, economy of force must be exercised in other places. The situation will frequently permit a strategically defensive mission to be effectively executed through offensive action.

Security.—Adequate security against surprise requires a correct estimate of enemy capabilities, resultant security measures, effective reconnaissance, and readiness for action. Every unit takes the necessary measures for its own local ground and air security. Provision for the security of flanks and rear is of special importance.

Therefore, to *mass* forces for a decisive blow in one main effort requires that *economy of force* be exercised elsewhere. However, excessive *economy of force* creates a *risk* and a violation of the principle of *security*. This risk must be carefully weighed in the commander's estimate of the situation (see MILITARY REVIEW, June 1951, "The Commander's Estimate," by Lieutenant Colonel L. G. Robinson, Jr.).

Military historians and authorities have recognized this conflict. As soon as the cordon system of warfare disappeared in favor of massing forces at one place in one main effort and economizing elsewhere, a careful balance between economy of force and security became necessary—to achieve success with a maximum main effort or to avoid surprise through maximum security. For example, Clausewitz, in his *Principles of War,* states:

In any specific action, in any measure we may undertake, we always have the choice between the most audacious and the most careful.

Foch, in his *Precepts and Judgments,* states:

We cannot be victorious everywhere: it will suffice for us if we are victorious on one point. We must fight everywhere else with a minimum of forces in order to be overwhelming on *that* point. We must economize everywhere else in order to be able to spend, regardless of loss, on the point where we desire to secure a decision; the *mass* must be applied there, and therefore be *made* and *reserved* beforehand.

Foch, however, does not overlook security when he states:

A constant preoccupation, while we prepare and combine an action against the enemy, must be to escape his will, to parry any undertaking by which he might prevent our action from succeeding. . . . We must, as if we were fencing, attack without uncovering ourselves, parry without ceasing to threaten the adversary.

This reasoning emphasizes the conflict between over-economy of force and security as producing the risk. We must recognize, in addition, that a risk may exist by an overapplication of the principle of mass. Colonel M. A. Solomon, in his article in the MILITARY REVIEW, June 1951, entitled "Dispersion is 'Not' the Answer," points out that mass is still necessary against an enemy with an atomic capability. He writes:

A calculated risk will assume great importance in the military technique of the atomic age. It is a risk which must be defined clearly and which must be readily and easily understood. . . .

Military Definition

With the foregoing background, can an acceptable military definition of calculated risk be reached? Colonel Solomon, in his article mentioned above, states:

A calculated risk, from a military viewpoint, may be defined as a command decision, made after an estimate of the situation, that an operation will be conducted against acceptable odds.

This definition cannot be accepted completely because a risk is not a decision, and because a calculated risk is not necessarily made *after* an estimate of the situ-

ation. In fact, it may more often be a *part* of the estimate or of the continuing estimate. In this connection, Field Manual 100-5 in paragraph 119 mentions calculated risks as a part of the estimate of the situation:

> . . . To delay action in an emergency because of incomplete information shows a lack of energetic leadership, and may result in lost opportunities. The situation, at times, may require the taking of calculated risks.

Colonel Solomon is closer to a true military definition when he states:

> . . . Every possible contingency must be foreseen. Every capability of the enemy to deliver an atomic blow must be plotted as to place and time. The resulting losses must be calculated carefully. Replacement units must be ready to fill the gaps. Nothing must be left to the imagination. All aspects of the operation must be based on realistic plans—nothing on unanticipated chance or hope.

General Mark Clark offers in his book, *Calculated Risk*, the following definition:

> A calculated risk is an action taken or contemplated, the outcome of which is uncertain, but which is undertaken after weighing all the factors for and against, because the reward that may be gained is sufficiently important to outweigh or overbalance the objections, hazards, or losses that may be involved.

The definition listed above is sound but does not go quite far enough. It omits one point—the positive action necessary to minimize the risk.

The point is that any military definition of the term must be based upon the two separate words, calculated and risk. The following definition is therefore offered:

A calculated risk is a deliberate disregard of or a lack of maximum security in order to promote the greatest chance for success together with a careful evaluation of the risk involved and specific measures taken to minimize possible losses.

Minimize Possible Losses

Measures that must be taken to minimize possible losses are:

1. Adequate and timely intelligence.
2. Provision for reserves.
3. Alternate plans.
4. Action against the enemy.

Intelligence

Obviously, the way to prevent surprise by the enemy suddenly appearing at some unexpected place is through the exploitation of every intelligence measure including reconnaissance, both ground and air; prisoners of war; documents; and communications intelligence. Once the information is received, it must be correctly evaluated and interpreted, integrated into the estimate, and disseminated. Neither the intelligence officer nor the commander dare ignore the intelligence or be misled by the effectiveness of enemy counterintelligence. Instead, they must deal realistically with enemy *capabilities*, not *intentions*.

Reserves

> . . . When we study military history we shall find that two initial faults are always recurring. The first is insufficiency of initial protective power, and the second insufficiency of reserves. The object in war is not normally gained by an initial offensive in strength, but by an initial resistance under cover of which genius can gain its end by a skillful use of reserves—in other words, by an economical distribution and utilization of force. . . .—General J. F. C. Fuller, *The Foundations of the Science of War.*

It is fundamental, of course, that reserves are located to favor the main effort. However, it may be possible at the same time to dispose reserves to be available, if necessary, for commitment elsewhere than the main effort, or, at least, capable of movement to prevent interference with the main effort. This point leads to the next—alternate plans.

Alternate Plans

Field Manual 101-5, *Staff Organization and Procedure*, dated July 1950, states specifically that plans must be flexible to

take advantage of or to counter every possible contingency. For example:

> . . . A plan cannot be rigid, incapable of alterations or change. Rather, a practicable plan must be capable of variations to meet changes in the situation. . . .
>
> The necessity of anticipating probable courses of action at some future date demands of the commander and the staff a continuing appraisal of those factors which will be affected by changing conditions. . . .
>
> In the initial stages of planning, some portions of the plan may be based upon assumptions concerning our own forces and the capabilities of the enemy. As additional information becomes available, changes will be made to accord with the facts. . . . The final plan must be capable of variations to reflect changes in the friendly or enemy situation as they develop.

Action Against the Enemy

After intelligence has produced the estimate of enemy capabilities, every possible action must be taken to neutralize those enemy capabilities which threaten the accomplishment of the mission. Continuing intelligence measures are maintained to keep informed of the enemy's activities. In addition, action may be taken to reduce the ability of the enemy to maneuver, such as bombing key bridges or communications centers; executing counterbattery fires which may neutralize artillery capable of firing atomic shells; and using chemicals or mine fields to delay the enemy's passage through vulnerable areas.

Historical Example

The allied forces' dispositions and plans in the fall of 1944 in Western Europe, prior to the German counteroffensive in the Ardennes, serve as a test of the suggested definition of calculated risk, to include the measures listed to minimize losses. The previously established definition of calculated risk will be applied to the Ardennes situation as follows:

1. The deliberate disregard of or a lack of maximum security.

2. The promotion of the greatest chance for success.

3. The careful evaluation of the risk involved.

4. The specific measures taken to minimize losses.

The Deliberate Disregard of or a Lack of Maximum Security

This part of a true calculated risk certainly applied to the Ardennes, since the commanders concerned intentionally assigned minimum forces to an overextended front. Four understrength divisions were to defend an 80-mile sector which had previously been a quiet one.

The Promotion of the Greatest Chance for Success

General Eisenhower was faced with the decision, in the fall of 1944, of either going on the defensive or remaining on the offensive by massing forces primarily in the Aachen and the Third Army areas, at the same time weakening his forces elsewhere. On the offensive, the allies had been able to maintain substantial advantages in casualties inflicted. They welcomed the opportunity of engaging the Germans west of the Rhine rather than behind that major obstacle, and, perhaps, the time factor was emphasized—time for the Germans to re-equip and train their troops and to perfect their defenses. It must be concluded, therefore, that "the greatest chance for success" was promoted by the decision to continue the offensive.

The Careful Evaluation of the Risk Involved

Here again, both General Eisenhower and General Bradley carefully considered the risk. The latter, according to General Eisenhower, even "traced out on a map the line he estimated the German spearhead could possibly reach, and his estimates later proved to be remarkably accurate. . . ."

The Specific Measures Taken to Minimize Losses

Adequate and timely intelligence.—Allied intelligence accurately located the German Fifth and Sixth Panzer Armies as they concentrated west of the Rhine near Cologne. Intelligence estimates invariably emphasized the German capability and *intention* of employing these forces north of the Ardennes to defend the Roer River and Erft Canal. When the Germans redisposed their forces under cover of a most effective counterintelligence plan, which took advantage of the long winter nights, the heavy clouds and fog, and strict communications security, they denied to the intelligence officer many of his most valuable sources and collecting agencies. However, it is virtually impossible to concentrate so large a force without a few indications appearing. The German concentration was no exception. Aggressive patrolling increased, high-caliber units were reported in the front line, river-crossing equipment was located in the forward areas, troops were recalled from the rear, and a large build-up, including armored divisions, was reported in what previously had been a quiet sector. In spite of these tell-tale signs, intelligence estimates were *not* materially revised. It must be admitted, therefore, that intelligence did not measure up to the trust of its commanders who were making a calculated risk.

Provision for reserves.—General Bradley had concentrated his troops for offensive action in two areas. Both of these areas were on the flanks of a possible Ardennes penetration. General Bradley had no reserves immediately available to the 12th Army Group headquarters; all available units had been allotted to the armies for the offensive. There were two airborne divisions in reserve—the 82d and the 101st—directly accountable to General Eisenhower's headquarters. Although few reserves existed in the purest sense of the word, the risk taken cannot be seriously questioned on this score alone, for the superior mobility of the forces concentrated for the offensive (in addition to the 82d and 101st Airborne Divisions) gave them the capability of employment on the flanks of the Ardennes. However, to exploit their mobility, adequate plans should have existed.

Alternate plans.—Much has been written about the failure of intelligence prior to the Ardennes campaign. Practically nothing, however, has been mentioned of the utter lack of alternate plans to counter every contingency. Perhaps it is claimed that the planners were not given adequate intelligence. This argument is hollow! Alternate plans must even be made occasionally on assumptions! Although it is true that higher commanders discussed the possibility of a German attack in the Ardennes as well as an allied counteraction, to include a delaying action by the front-line troops, adequate alternate plans were *not* developed. Units were not given alternate missions, routes and assembly areas were not prescribed or selected, nor were any of the other many details of an alternate plan listed. On this point, the "risk" was not "calculated."

Action against the enemy.—In the assumed area of penetration, very few supply installations were placed. After the German penetration, certain gasoline dumps were moved or destroyed. These measures, of both negative and positive nature, denied valuable supplies to the Germans, since they depended upon the capture of such supplies to maintain their momentum. Except for these measures, very few, if any, positive actions were taken to deprive the enemy of his capability of attack in the Ardennes. It is true that the German movement of troops at night and during bad weather prevented the bombing of their march columns. Moreover, our national policy prohibited the use of chemicals to delay any German

attack. However, it is not believed that full use was made of extensive mine fields and road blocks. To employ four divisions on a front of nearly 80 miles demanded that an elaborate system of defenses augment the natural obstacles. Therefore, except as stated above, practically no action against the enemy was taken to minimize losses.

Summary

It must be concluded, therefore, that the allied dispositions and plans were not completely "calculated." There was a deliberate disregard of or a lack of maximum security, but there was the desire to promote the greatest chance for success, and a careful evaluation of the risk involved was made. Intelligence, however, was not successful. Estimates were not revised after the Germans redisposed their reserve armies, even though a few indications of a forthcoming attack in the Ardennes were known. Alternate plans did not exist, and very little action was taken to deprive the enemy of his attack capability or to delay him.

Conclusions

1. A calculated risk is a deliberate disregard of or a lack of maximum security in order to promote the greatest chance for success, together with a careful evaluation of the risk involved and specific measures taken to minimize possible losses.

2. Specific measures that must be taken to minimize losses include:

a. Adequate and timely intelligence.

b. Provision for reserves.

c. Alternate plans.

d. Action against the enemy.

3. The term "calculated risk" must never become an expression to excuse failure, soften the blow of defeat, or justify being surprised.

The fact is plain that Soviet Russia is primarily vulnerable to air power—both land based and carrier based.

The same holds true for the continental United States, apart from the ravages which could be inflicted upon our maritime lines of communication by the Soviet submarine fleet and a minelaying campaign.

The development of atomic weapons by Soviet scientists and the building of the means of delivery of those weapons constitutes a danger which daily grows in seriousness.

General Hoyt S. Vandenberg

WHAT KIND OF AN ELEPHANT IS ARMOR?

Evolution of the Armored Arm in the United States — 1945 to 1951

Lieutenant Colonel Paul L. Bogen, *Armor*
Instructor, Command and General Staff College

THE year 1945 brought peace and demobilization. The Nation's major concern was to "get the boys home." The problems of the Army changed from those concerned with active warfare to those involved in salvaging a military organization to preserve the peace. With too little concern for the future, the United States welcomed the opportunity to throw off the restraints required by war. Naively, we had, for the second time, fought and won "the war to end wars." Superimposed upon our victory fervor was the overconfidence built by "the bomb." Thus we entered a period of atomic worship. We felt secure in the knowledge that our scientific achievement made future wars unthinkable. The concept of "push-button warfare" was widely proclaimed. Unknowingly, and with the deep trust of a child, we embarked in the period that we now know as the "cold war."

What's in a Name

Our excellent war machine became a skeleton. Huge fields full of abandoned equipment were overgrown with weeds that concealed rusty hulks. Equipment was not the only thing neglected. In spite of the pleas of the services and their supporters, we cut to the bone.

During the war years we had developed an *armored arm*. Like many other developments of the war, it was doomed to face trials and tribulations almost too rigorous for so young an organization to weather.

However, the history of armor is one of continual trials. Preceding and during World War I, the new armored vehicles had been called a variety of names. The British called them *Landships*, the *Wilson Machine*, the *Whippet*, and, finally, because of security involvements, the name "tank" evolved. This name was adopted by the United States forces and, in 1918, the American Tank Corps was organized officially. Prior to that time, a tank battalion for engineer work had been formed under the Corps of Engineers. In the years that followed, the name of the organization changed successively from Tank Corps to Mechanized Force, to the Gasoline Brigade, back to the Mechanized Force, then to Cavalry (Mechanized), with units designated as Infantry (Light Tank), and Infantry (Medium Tank). Finally, in 1940, the Armored Force was organized. The changes in name are but a slight indication of the changing emphasis given to the several branches of the service. The consideration of title and policy continued during 1945 to 1951. Many of the mem-

A considered policy can stimulate the evolution of armor. An adequate armored arm can give us a force that, properly employed in a balanced military team, will strike and crush any future enemy of our country

bers of the Armored Force were assigned to the Cavalry branch. Others chose to continue as Infantry or Artillery.

Frequent official reference was made to Armored Cavalry or Mechanized Cavalry. Finally, on 20 July 1950, the Armor branch was established. The rapidity with which the designation of the arm has changed has been equalled, if not exceeded, by the rapidity with which the concepts of mechanized or armored tactics and employment have changed. In reality, the name is not important. Concepts, doctrine, and policy are.

'The Golden Tanks Go Coursing Down the Autobahn'

The use of armored vehicles in war has been traced back to about 1200 B.C. Tanks used in World War I failed initially. In the final years of the war, they were used with moderate success. In reality, the major difference between the armored vehicles of antiquity and those used in World War I was the use of motors. The European theater was the birthplace of armor as we now know it, and the scene of its greatest success. World War II saw a record that might be summarized as *blitzkrieg*, *bog-down*, and *break-through*.

The story of German armor was well presented in the Foreign Military Digests Section of the July 1951 issue of the MILITARY REVIEW (a translation of an article which appeared in "Revue Historique de l'Armee" (France) of December 1950). The success of the panzers in France and Poland and the story of the "Desert Victory" are well known to all. The failure of German armor in Russia was presented in the digest mentioned above. Its author summarizes by stating, "The Russian campaign appears, in retrospect, like a war filled with missed opportunities. The cause of this was a false conception of modern warfare and a defective organization. May this serve as a warning!" The author lists as major causes of failure the lack of armored divisions and improper employment of armor.

In America, the final impression of armor was based on the dramatic breakthrough across Germany, which was a fitting climax for the glowing exploits reported during the dash across France. Because these actions were dramatic, they probably were overpublicized and caused reactions, among members of the other arms of the service, which have been a detriment to the development of armor in our Army since the war.

Mitchener opens his book, *Tales of the South Pacific*, with a penetrating reference to the accounts of the European veteran in which he summarizes with: "The golden tanks go coursing down the Autobahn." The attitude presented was shared by many members of the arms and services. Armor was characterized as a "glory grabbing" flash in the pan. During this period no outstanding leader could be identified as the champion for armor in the postwar army. Many voices were raised, but few were heard.

The Death of a Salesman

In the period 1928 to 1941, the cause of armor had found a strong and effective champion in General Adna Romanza Chaffee. Paradoxically, his death came within a few weeks of the culmination of his efforts. After 13 years of uphill fighting, he succeeded in having his plans for an armored force accepted. The American armored division was born and his dreams became a reality. He did not live to see the ultimate armored successes in the European war that vindicated his long struggle. The story of General Chaffee is the story of the development of the Armored Force. It is well presented in Mildred Hanson Gillie's book, *Forging the Thunderbolt*.

The men who worked with Chaffee toward a common goal were the men who led American armor in battle. Unfortu-

nately, most of these men were soldiers, not salesmen. Five years later, one man, General George S. Patton, the most colorful allied leader of armor in World War II, might have carried the cause to the policy makers. General Patton had successfully fought tanks in two world wars, and might have been an effective salesman for its cause in the postwar period. When General Patton was killed in an automobile accident in 1946, armor lost its second "salesman." In retrospect, it appears that history is repeating itself.

The best of the United States World War II medium tanks, the *M26 (Pershing)*, weighing 45 tons, is equipped with a 90-mm gun, a 500-horsepower engine, and 4-inch armor plate.

Tin Can or Tornado?

The evolution of the armored arm during the postwar period cannot be considered in a vacuum. The general demobilization and the public acceptance of new concepts of war, plus the dominant desire for peace, had drastic effects on all services and all arms. Our Nation was plunged into a position of world leadership for which our previous isolationism had prepared us poorly. It was, probably, inevitable that we should reduce our military forces and accept eagerly the hope of achieving world peace through the United Nations; or, perhaps, accept the concept of scientific weapons as a replacement for men and machines.

Within the services, the struggle for the dominance of various concepts has been well publicized. The Navy found its "battlewagons" challenged. "Victory through air power" became a popular slogan. The tank was labeled "tin can" by some, and, with more enthusiasm than necessary, as a "tornado" by others. The mission of armor was debated hotly. One group supported heavy tanks whose only mission was close support and operation with and for infantry. Another major group advocated lighter vehicles, with

high mobility and increased fire power, whose mission primarily was to be exploitation and break-through. However, there were those less articulate and frequently better informed members of the armored force who proceeded to work on the development of new and better armor, and on the revision of tactical principles for its employment based on the experiences of World War II. Perhaps the future release of the private papers of one of these men will reveal a story that parallels and continues the story of General Chaffee.

Is Armor Obsolete?

In 1950, one of our top general officers made the statement to the student body and faculty of the Command and General Staff College that "Armor, as we know it, is now obsolete." This statement, like any unsupported generality, is subject to many interpretations. Let us examine the evolution of the armored arm during the postwar period from two viewpoints: first, in the light of scientific and mechanical developments; second, in regards to tactics. Inherent in our considerations must be political and economic factors. We have been prone to climb out on the limbs of the tree of extremism and then to proceed to cut off the limb while seated upon it. In regard to many of the problems involved, it is not an "either—or" proposition.

Scientific and Mechanical Developments

It is public knowledge that our Nation has carried on extensive experiments with guided missiles, atomic energy, and air transport. Less spectacular, yet of perhaps greater immediate importance, have been the research and development of small arms, shaped charges, recoilless weapons, motors, suspension systems for tracked vehicles, and specialized tests under extreme weather conditions. Our program of research and development is vital to national defense. Complementary to these activities are our programs of testing and training. Until these new developments have been tested and used in operations under circumstances, and in situations, as near to actual battle and war conditions as possible, the program is not complete. This testing must include training, and should result in the development of training procedures adequate to meet the needs of national defense.

The procedures listed above are obvious. Their implementation is dependent upon the Nation's economy and its economic policy. Faced with the unknown, we are forced to keep one hand on the world pulse and the other on our pocketbook. The evolution of the armored arm is tied irretrievably to the fluctuations in the Nation's economic policy for defense. Armor and its development must be watched more closely because of the high cost of production of armored vehicles. Attempts have been made to standardize parts, weapons, and operations in order to keep costs down. However, our policy must be an evolutionary one because we cannot afford the immense expense of using a "new broom." In such a policy, the applicatory phase of testing and training could be planned, based on the projection of results obtained from the research and development activities.

A Policy for Armor

In general, a policy should be based on a phased plan. Its development might be called evolution by planned steps. At the beginning of each phase, an armored force (in a ratio, roughly, of 1 to 3 in size as compared with infantry forces, as recommended in the type field army) should be equipped with the best armored vehicles available. At the end of the prescribed phase, all armored units would be re-equipped with the best equipment developed during that phase. This might require complete replacement in some types of ve-

hicles and weapons and merely a modification of others. *The basic goal is the maintenance of a completely equipped armored force in its proper ratio to the infantry.*

In some cases, a fixed policy of this type might result in our having equipment inferior to that which we would develop under a policy of continual experimentation and replacement. However, our armored force would be less vulnerable to unpredictable fluctuation and the result would be units adequately equipped and of a higher state of training and morale.

As regards the time length of each phase, perhaps a period of 5 years is too short, considering our economic situation. A period of less than 5 years would not provide adequate time for the research and development program to be implemented effectively by American industry. Certainly a phase of more than 10 years in length would result in our armored force being equipped with obsolete equipment of little value.

Such a policy would not guarantee maximum efficiency. It could guarantee a minimum. It seems apparent that during the period 1945 to 1951 no such policy was in operation, although it undoubtedly had been proposed.

A modification of the World War II stand-by—the *M4A3*—this *M4A3E8* has several major improvements. It has a 76-mm gun, a speed of 25 miles an hour, and 3½-inch armor plate.

Advantages of the Policy

The proposed policy has the following five major advantages:

1. Maximum armored preparedness would be obtained from the total budget for armor during the period.

2. Our industrial facilities and organizations would be able to work at maximum efficiency with a stated policy to guide them.

3. Civilian enterprise would not suffer from shortages caused by sudden and unexpected demands on essential supplies.

4. Adequate vehicles and equipment of standardized types would be available for all armored units.

5. A training program for armored troops could be established and maintained.

Disadvantages of the Policy

Certain disadvantages and difficulties would result from the policy. Fiscal allocations for the armored equipment would require preplanning so that adequate funds would be available for the required replacements at the end of the phase. This would be provided for, in part, by the 2 to 3 year lag period in production which would be required by industry in order to produce the desired equipment.

An *M46 (Patton)* tank crossing a stream.

A phased plan would require industry to retool for each phase. However, this would eliminate many uncertainties. Essential materials also would be subject to a patterned priority. All in all, the advantages considerably outweigh the disadvantages.

The 'Either—Or' Philosophy

Armor is expensive. The operation of armor is expensive. The armored equipment we have on hand is obsolete in the light of new developments. Therefore, abandon armor. This was the argument of some of our leaders who compromised their position by further stating that we should retain a token armored force even though it was a skeleton with insufficient manpower and obsolete machines.

The armored arm was not the only force to suffer. All arms and services had similar experiences. The question then becomes one of degree. Within the Army, the most expensive arm, from the operations standpoint, is armor. Therefore, its curtailment could free more funds, with effect on less personnel, than any other branch. Based on this concept, the testing and training phase of the development process in the evolution of the armored arm was curtailed during the postwar period.

"Monday morning quarterbacking" is, of course, the most efficient type. In all fairness, it must be pointed out that we have investigated many new developments and limited testing has been done. But a policy establishing an adequate proportion of armored units, allowed to operate sufficiently to maintain efficiency, must still be tested. This could have been accomplished by prescribing the type of equipment to be used during a 5-year period, by allocating funds for its operation, and by providing for the conversion to the best available equipment at the end of that period. In order to test new developments adequately, experimental units could be designated to augment existing boards. It is not necessary that we abandon armored units and allow them to drop below the recommended ratio of 1 to 3 or constantly

re-equip them with improved vehicles or weapons.

At the present time, the United States forces are using some five different types of medium tanks alone. These include: the *M4A3E8*, *M26*, *M46*, *M46E1* (or *M47*), and the *T42*. The same diversity also exists in other armored vehicles and weapons.

The *M46*, above, is not unlike the *M26*, although several outstanding improvements give it greater speed and power, increased reliability, and improved mobility in operation.

The Role of Armor

The effects of research and development cannot be considered without involving the tactical aspects of the role of the armored arm. The opinions and attitudes of our leaders concerning tactics are, very probably, the determinants of the progress of the arm.

General Patton, in *Letter of Instruction Number 1*, Third Army, stated, "There is no such thing as 'tank country' in a restrictive sense. Some types of country are better than others, but tanks have and can operate anywhere." This concept has not been shared by some other military leaders. The tank frequently is relegated to the role of exploitation and operation in open country. If this limited usefulness is accepted, its development logically is curtailed.

The postwar period has resulted in the evolution and acceptance of four major missions for armor. These missions are:

1. The assistance of the infantry soldier in attack and defense.
2. Exploitation and heavy assault.
3. Defense against enemy armor in force.
4. Security and reconnaissance.

These concepts of the missions for armor are not new. They are the same ideas advocated by General Chaffee and many other military leaders. The successful accomplishment of these missions requires three basic types of armored units, namely

the armored division, the separate tank battalion (an integral part of the infantry division), and the armored cavalry regiment. Carrying this one step further, it is also indicated that three types of armored vehicles might be required: light, medium, and heavy. The armament and armor of these vehicles would be based on research and development and on the resulting plan for implementation and supply.

There are many advantages to interchangeable vehicles and units. The "universal" type vehicle has been frequently considered and still has its advocates. Such a "cure-all," moreover, may be an inefficient "jack-of-all-trades." However, "universal" supply and parts are accepted as a continual goal.

None of these recommendations of policy for, or employment of, armor is new or extreme. At the present time, the status of armor indicates that in many ways these recommendations conform to the *status quo*. They have been or are being carried out. Our problem returns to major concepts in economics and tactics.

Is the Game Worth the Candle?

The development of improved antitank weapons has led many to believe that the tank is no longer of value in modern warfare. Defense in depth, the use of mines, the shaped charge, and the improved antitank gun are much less expensive than equipping and operating armor. If any or all of these could be employed without human error and in sufficient numbers, the tank might be, as some contend, obsolete. However, if more effective mines are designed, more effective ways of detonating and passing through or over mine fields also can be developed. If better guns and shaped charges are developed, they also can be mounted on and used by tanks. An armored carrier will still provide protection against small-arms fire for personnel, as well as mobility and shock action.

The history of offensive and defensive warfare has seen a continual shift in dominance with the offensive usually bringing eventual victory. It is paradoxical that in the most mechanized country the world has ever known, militarily we have not accepted mechanization completely. The story of Christie, and his failure to convince the United States of the value of an armored full-track vehicle, is typical of this reluctance. Thus, while favoring the offense and endorsing the doctrine that "The best defense is a good offense," we have not recognized all the potentialities of the best offensive weapon—armor. Realizing the restrictions of budget, we must strive to maintain a balance, not in expenditures but in strength, between the infantry-armor team. This can be accomplished by an evolutionary, phased program of the type advocated herein.

What Kind of an Elephant Is Armor?

Frequent reference is made to Hannibal's use of elephants as one of the forerunners of mechanization and armor. The question is, "Is the modern behemoth a 'white elephant?' Or, is it like Hannibal's famed corps, a weapon of great shock action, combining mobility and fire power?"

The Germans developed the finest armored force in the world during the thirties. Their *blitzkrieg* tactics brought early victories. Their record of failure in Africa, Russia, and Western Europe is the record of missed opportunities. The proportion of armor in their field army was lowered after their initial victories. They faced determined enemy armor, for the first time, with proportionately less armor of their own.

Today we must ensure that we do not weaken our defenses by refusing to feed the "elephant." We know our potential enemies are maintaining strong armored forces. There is a legend of six blind men who tried to describe an elephant. One felt the elephant's leg and said, "It is a tree

trunk!" The second felt its side and said, "It is a wall!" The third took hold of the elephant's trunk and exclaimed, "Ah, a snake!" Our fourth blind man felt its ear and remarked, "My, what a large leaf!" The fifth, in a disadvantageous position, took hold of the tail. "It is a rope!" he cried. The last member of the six was most advantageous and climbed upon the elephant's back. As it moved off, he called down to his friends, "It is a vehicle upon which you can ride!" To get a true picture of the "elephant" that is armor, one must open his eyes and look at all its aspects. Until such time as push-button warfare becomes a reality, beyond the laboratory, or world peace is achieved, we must feed the "elephant" and keep him in condition to work for our common goals.

Armor has not evolved adequately during the period 1945 to 1951. A considered policy can stimulate its evolution and give our military establishment an "elephant's corps," such as Hannibal's, that will strike and crush an enemy when employed properly in a balanced military team.

NEXT MONTH

Main Articles

Who Failed to Get "The Word"? by Colonel George C. Reinhardt; and *Practical Aids to Logistic Planning* by Lieutenant Colonel Herbert A. Jordan are included among the main articles.

Foreign Military Digests

The foreign digests include "Mobile Forces" from *Bellona*, a Polish language military quarterly published in England; and "Zonal Defense" from *An Cosantoir* (Ireland).

Books of Interest to the Military Reader

Reviews of *Hitler's Strategy* by F. H. Hinsley; and *American Democracy and Military Power* by Louis Smith are included.

South of the Pyrenees--What?

Lieutenant Colonel James C. Jeffries, Jr., *Artillery*
Instructor, Command and General Staff College

The views expressed in this article are the author's and are not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

MILITARY geography, a factor of strategic intelligence, plays a major part in an assessment of the military value of a given area. Keeping that thought in mind, let us consider the implications of the military geography of the Iberian Peninsula.

Because of service in the European Theater of Operations, or from a general study of the campaigns of World War II in that theater, most Army officers have a good basic knowledge of the military aspects of the geography of Europe to the Pyrenees. How many of us have an adequate knowledge of the geographical character of the area of Europe to the south of that formidable range of mountains? Recent developments have emphasized the possible strategic importance of the Iberian Peninsula to the extent that a geographical study of the area should be of interest.

Importance of Geographical Location

The Iberian Peninsula is the westernmost of the three peninsular appendages to the continent of Europe that lie between the Atlantic Ocean and the Near East. Separating the Atlantic from the Mediterranean and Europe from Africa, its strategic location has been one cause of its long history of wars. It consists of Spain and Portugal, and the British colony of Gibraltar. Of a symmetrical, rectangular shape, it is about the size of Texas. (See Figure 1.) The peninsula is not only the nearest European land mass to the continent of Africa, but it is closer to the United States than any other large European area.

Until modern times, the mighty barrier of the Pyrenees discouraged free intercourse between its inhabitants and the rest of Europe. On the other hand, the shallow Strait of Gibraltar, about 12 miles wide at its narrowest point, proved no obstacle to movement between the Iberian Peninsula and North Africa. Today, many aspects of the peninsula are more typical of African than of European culture. Consideration of Iberia as a wide bridge between Africa and Europe is reflected in the quotation: "Africa begins at the Pyrenees," and is exemplified by the Moslem conquest of the peninsula in the eighth century and their domination of the region for about seven centuries.

During the fifteenth and sixteenth centuries, Spain and Portugal took full advantage of their favorable geographic location to expand their holdings to the far corners of the world. Both countries rose to a position of power and wealth unequaled by them before or since.

Geographical diversity within the peninsula has been one of the principal contributing factors to its history of civil war

and strife. Territorial changes generally have followed the natural topographical features of the peninsula, which tend to separate one area from another. This differentiation still persists today when considering the several population groups with their varying languages, customs, and physical appearance.

From a *geographical* standpoint, what does the Iberian Peninsula have to offer in the strategy involved in the defense of Europe? First, considering its position alone, the area is well situated for the location of tactical bases—land, naval, and air—or a base of supply supporting operations elsewhere on the Continent. Naval bases, including carrier and submarine, could be so located as to control Atlantic shipping lanes, both approaches to the Strait of Gibraltar, and the Western Mediterranean. Second, the high central plateau is well suited for the location of strategic bomber bases, should their use become necessary through the denial of other European or African bases. The fact that the peninsula lies closer to the United States by sea and by air than any other part of the European Continent, and that it lends itself to supply by means of southern shipping lanes (protected by sea and air power based on the peninsula), merits its consideration as a large supply base. (See Figure 2.)

However, an analysis of the military geography of the peninsula itself indicates that there are disadvantages to be considered before the obvious military assets offered by its location alone are flatly accepted.

In assessing the value of the Iberian Peninsula to military operations on the European Continent, its strategic location and topography, well adapted for defense, are geographical factors that must be considered

Terrain

A bird's-eye view of the Iberian Peninsula shows us a high central plateau, averaging more than 2,000 feet in elevation, hemmed in by high mountains, and flanked, except on the north and northwest, by a narrow coastal plain. There are two great indentations in this huge block—the Ebro Trough on the north and the Andalusian Plain on the south. The relief of the peninsula is sharper than that of any other area of Europe. While its mountains rival but do not match those of Switzerland in height, the fact that they start from sea level makes the variation in elevation greater from base to peak. The plateau itself is crossed from northeast to southwest by several mountain ranges. Topographically, then, the peninsula divides itself into three areas: the high mountains rimming the central plateau, the central plateau and its ranges, and the lowlands. (See Figure 3.)

Mountains

There are four principal mountain ranges serving to isolate the central tableland: the Pyrenees and Cantabrians on the north; the Iberic Mountains on the northeast, rising from the south slopes of the Ebro Trough; and the Andalusian Mountains on the southeast.

The Pyrenees, separating Spain from France, and indeed from the rest of Europe, form a rugged barrier with snow-capped peaks extending to a height of more than 11,000 feet. The absence of good passes through the Pyrenees adds to the barrier effect of the mountains themselves. Of the four main passes extending into France, only two are suited for large-scale military traffic. These, however, have the disadvantages of being very vulnerable to air attack, and of being impassable be-

cause of snow blockage from early autumn to late spring.

Separating the central plateau from the Atlantic on the north and northwest, the Cantabrian Mountains extend from the Douro River in northern Portugal north and east along the coast to culminate in the Pena de Cerrado (8,794 feet). The Iberic Mountains rise from the south slopes of the Ebro Trough, bordering the central plateau on the northeast, and tie-in with the Cantabrians on the northwest and the Andalusians on the southeast.

The Andalusian Range on the southeast border of the peninsula is the second largest mountain system, and contains the highest point in Iberia—Cerro Mulhacen (11,417 feet). The northern portion of the system closes the eastern end of the Andalusian Plain, and extends eastward to form the Cape de la Nao and northward to tie-in with the Iberic Mountains.

The Meseta

The high central plateau of Spain, the dominant relief feature of the peninsula, is the Meseta. Varying from 2,000 to 2,500 feet in elevation, it occupies about 60 percent of the area. It generally is divided into two subplateaus, the Northern Meseta and the Southern Meseta, by the Central Sierras, a mountain range extending laterally from Cape Carvoeiro on the Portuguese coast to the Iberic Mountains. Located on the south edge of the Meseta is the Sierra Morena, which rises abruptly from the low Andalusian Plain.

It has been said that the Meseta is the true Spain because of its geographical isolation from the other regions of the peninsula, an isolation resulting from the abrupt nature in which it rises from the few lowlands that border it. The need for routes of access to the Meseta, therefore, has made the passes on its borders and the river valleys that lead from it to the coast geographical features of vital importance.

Lowlands

Except for a narrow coastal strip, widening somewhat in the vicinity of Valencia, there are only two principal coastal lowland areas in the peninsula: the Portuguese Lowlands and the Andalusian Plain. Separated from the Mediterranean coast by the Catalonian Highlands is the Ebro Trough, forming a third lowland area. (On the north and northwest coasts, the mountains rise steeply and abruptly from the sea.)

The Portuguese Lowlands lie principally to the south of the Tajo River for the entire length of the Atlantic coast to their juncture with the Andalusian Plain at the terminus of the Sierra Morena near the boundary between Spain and Portugal.

The wedge-shaped Andalusian Plain is about 100 miles wide at its mouth on the Gulf of Cadiz, and extends inland about 200 miles, being drained by the Guadalquivir River. From the low Las Marismas swamp along the coast, the plain gently ascends inland past Cordoba, 125 miles from the Gulf of Cadiz, to closure by the Andalusian Mountains at its eastern extremity.

The Ebro Trough, really a low plateau, is similar in shape and size to the Andalusian Plain. However, it is dissimilar, in that it is shut off from the coast by the Catalonian Highlands. This plain consists of two basins, only the lower of which may be considered as a lowland area. The lower basin, making up most of the plain, varies between 600 and 1,000 feet in elevation. The Ebro River follows a deep gorge as a route of exit from the lower basin. Hemmed in by mountains on all sides, the Ebro Trough represents a barrier to communications and movement, and has done much to isolate Catalonia from the rest of Spain.

The long coast line of the Iberian Peninsula, about 2,500 miles in length, is generally straight but forbidding. There are relatively few routes of access to the in-

terior from it, and good harbors are scarce.

The best coastal approach to the interior is found in the southwest along the coasts of the Portuguese Lowlands and the Gulf of Cadiz. However, numerous rocky headlands on the Portuguese seaboard, together with sand dunes and low wave-built islands, as well as the Las Marismas swamp at the mouth of the Guadalquivir mountainous terrain immediately to the rear offer little means of access to the interior.

Rivers

Most of the drainage of the peninsula, following rather closely the border of the Meseta, is westward by four principal rivers: the Tajo, the Overo, the Guadalquivir, and the Guadiana. The Ebro River,

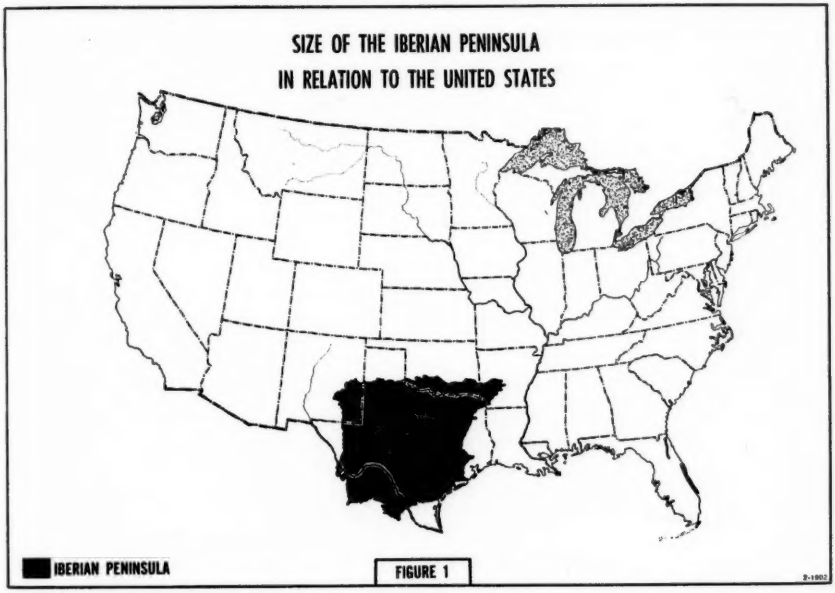

FIGURE 1

River on the Gulf of Cadiz, limit access even in this portion of the peninsula. In the vicinity of Valencia, on the Mediterranean, the coast widens to several miles. However, the entire coast of the Gulf of Valencia is low and swampy and the shallow lagoons found there are unsuitable as harbors.

The estuary of the Tajo, the Bay of Setúbal, the Gulf of Cadiz, Algeciras, and Cartagena offer harborage. Although the best natural harbors are found in the fjord-like indentations of the northwest coast, their use is limited by the fact that the bold, rocky nature of the coast and the draining the trough between the Pyrenees and the Meseta, flows eastward into the Mediterranean. There are numerous smaller streams, mostly rising on the central plateau, but all are characterized by little water, irregular flow, and steep gradients. Depending on the season, they vary from raging torrents to dry stream beds. The steep, gorge-like valleys through which most of the rivers flow act as formidable obstacles to cross-country movement.

The Guadalquivir is the only river navigable for any appreciable distance, and it is, consequently, the most useful in the entire peninsula. However, the ascent of

this river is limited to about 50 miles, as far as Seville. The longest river in the peninsula is the Ebro, which is, however, navigable for only a very short distance inland.

Climate

The influence of the Atlantic Ocean and the Mediterranean, and the relief of the peninsula, tend to divide the area into three climatic regions: the Atlantic north and northwest, the central tableland, and the Mediterranean coast. (See Figure 4.)

The climate of the northwest is maritime in character and uniform in nature. Winters are mild and summers are cool, with an abundance of rainfall throughout the year. Excluding the mountain ranges, a distinctly continental type of climate characterizes that of the Meseta. The winters have some rainfall brought by storms, but, in general, the area is dry and dusty. Summers are hot and dry, as most moisture-bearing winds lose their precipitation on the slopes of the mountains rimming the plateau. The climate of the Mediterranean coastal region is distinctly subtropical, about the same as that of North Africa. Areas of the greatest precipitation are the Sierra Nevadas, the vicinity of Valencia, and north of Barcelona.

Since about 60 percent of the peninsula receives less than 24 inches of rain annually, we must consider this as the most important climatic factor. Lack of water would be a distinct handicap to military operations conducted in the interior. On the other hand, it is obvious that this light rainfall ensures soils of generally good trafficability for mechanized operations in the major part of the peninsula throughout the year.

Falling snow does not tend to stay on the ground because of above-freezing surface temperatures throughout most of the peninsula in winter. Only the northern and central mountains and the Pyrenees have more than 20 days of snow annually. Of course, prolonged snow blockage in the high mountain passes during the winter months is an important consideration.

Summarizing, lack of water presents a problem in the conduct of operations on the central tableland, especially the Southern Meseta. Otherwise, except in the high mountains, the climate of the peninsula is not such as to seriously hinder military operations.

Vegetation

Vegetation depends to a large degree on climate. Therefore, the vegetation of the peninsula can be divided into three general classifications following closely the three climatic regions. The humid northwest has the only real timberland in the entire peninsula, containing forests of deciduous trees, such as oak, beech, chestnut, and birch. In the arid Meseta, steppe and bunch grass are general. Only on the upper slopes of the main ranges are conifers found. The most common trees of the central plateau are two species of oak. The Mediterranean region of the southeast contains only such trees as olive, evergreen, oak, and tropical palms, while the evergreen shrub known as *maquis* is typical here.

Ruthless exploitation and clearing operations have reduced the original forest resources of Spain to about 5 percent of the land area. Portugal, for climatic and other reasons, is more fortunate, having about 26 percent of the country forested, mostly with pine and oak, including cork-oak.

It is highly doubtful, in the case of Spain, that sufficient timber could be procurable anywhere to support large-scale military operations. The country is almost completely deforested, and little is being done to remedy the situation. Since Spain imports most of its timber for domestic needs, the prosecution of military operations in this area of the peninsula would necessitate the same procedure.

Communications

Transportation facilities, as they presently exist, are poor. Spain will not recover for some time from the great destruction to her communications during the Spanish Civil War. The lines of communications emanate from Madrid to all the principal coastal ports, including Lisbon and Oporto, like spokes of a giant wheel with Madrid as the hub. The actual routes followed by these rail and road lines are devious and twisting, as dictated by the rugged terrain traversed, and include many bridges and tunnels. (See Figure 5.)

EUROPE FROM THE SOUTHWEST AND ROUTES OF APPROACH TO THE IBERIAN PENINSULA

FIGURE 2.

Principal highways lead from Madrid to the ports of Lisbon, Cadiz, Valencia, and La Coruña. Two other main highways run from Madrid to the French border, one passing the western end of the Pyrenees via Irun and the other to the east via Barcelona. Although these roads appear as "first class" on the map, the roadbeds in many sections are in poor condition. The most important disadvantages of the system lie in the lack of cross connections between the main routes and in the fact that most roads funnel directly through the narrow streets of the villages en route. Since village streets normally are only 10 to 12 feet in width, military operations would require that many bypasses be built at such villages to avoid these bottlenecks.

A primary disadvantage of the railway system is that the gauge differs from that of France, necessitating the transshipment of supplies at the Franco-Spanish border. Within the peninsula itself, there is no standard gauge, most mileage being of broad gauge with the balance comprised of several different narrow gauges. Although all the principal routes are of broad gauge, it is easy to visualize the difficulties involved in the transshipment of supplies to areas off these lines by means of the narrower gauges of the secondary routes. In addition, cross connect-

ing lines are few in number. Because of the difficult terrain, most lines are characterized by steep gradients and numerous tunnels.

In summary, the support of major military operations within the peninsula, or its use as a large land base for overland

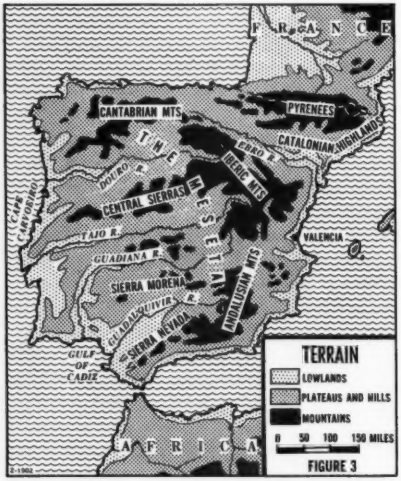

FIGURE 3

supply to other parts of Europe, would necessitate extensive rehabilitation of both roads and railways. Tactical considerations of snow blockage in mountain passes, the restriction of principal routes by narrow valleys and tunnels, and lack of cross connecting routes would involve continuing problems.

Routes of Approach

Strategically, the insular character of the peninsula almost dictates a seaward approach. However, routes of approach from the landward north also must be considered. (See Figure 2.) The principal routes of approach are:

1. From the Portuguese Lowlands to Badajoz, and then through the Guadiana Valley into the interior.

2. From the Gulf of Cadiz, through the Andalusian Plain, northward into the interior.

3. Around the western end of the Pyrenees, through Burgos, southward into the interior.

4. Around the eastern end of the Pyrenees, from the direction of Barcelona, southward into the interior. (In addition to the Pyrenees barrier, this approach is further hampered by the Ebro Trough.)

Geography and History

Geography has played a major part in the peninsula's military history. Recent conflicts have been struggles for control of the Meseta. Why? The reason is obvious, for the control of the central plateau means control of communications. Remember the radial pattern of the communications system. These main lines, over the Meseta, serve as the only means of binding together the isolated, food-producing coastal areas. Hence, Madrid assumes an importance as the hub of the system that it might not otherwise have militarily. The long Peninsular War and the recent Civil War provide examples of the importance of communications in military operations on the peninsula.

With the British in command of the sea, the inability of the French to maintain the security of their long lines of supply between Bayonne and Madrid was one of the causes of their eventual defeat in the Peninsular War. The vulnerability of these lines of communications in turn promoted the organization and effective action of guerrilla forces. Their successes forced the French to dissipate their strength in endeavoring to maintain the security of their communications. From past history, therefore, we can infer that the rough terrain of the peninsula provides the needed shelter for guerrilla forces, who are made more secure by the lack of routes for their pursuit.

During the recent Civil War, one of the principal objectives of the Nationalist

forces was the great communications center of Madrid. In their early drive north to outflank Madrid on the west, the Nationalists had to obtain and retain sufficient communications to support their very extended frontage, while endeavoring to cut all of the communications of the

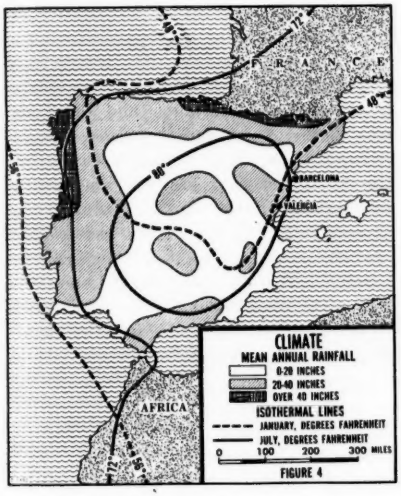

FIGURE 4

beleaguered city. This situation again brought out the natural Spanish aptness for guerrilla warfare on the part of both Loyalist and Nationalist forces. From the foregoing, we can deduce that the geographical conditions of the peninsula have a profound influence on communications and guerrilla warfare. For this reason, they should be of continuing importance in the consideration of military operations there.

Summary

1. The strategic location of the Iberian Peninsula at the western extremity of Europe was a principal contributing factor in the rise of Spain and Portugal to the status of world powers. Its location makes it of possible importance now to the defense of Europe.

2. The peninsula itself has geographical peculiarities not widely known or appreciated.

3. Historically, the isolation of the peninsula caused by the Pyrenees resulted in it having closer relations with Africa than with the rest of Europe.

4. The topography of Iberia is its greatest military asset. Its high central plateau, rimmed by high mountains, buttressed by the Pyrenees on the north, together with a small number of good landing areas and natural routes to the high interior combine to make the entire peninsula a natural fortress.

5. Communications, as they now exist, are not suitable for the support of large-scale military operations, nor for the movement of large amounts of supply by land to the north of the Pyrenees. The radial pattern of the communications system, with few and poor cross connecting lines, the varied railway gauges, and the

FIGURE 5

poor condition of available rolling stock constitute real handicaps to movement.

Conclusions

The principal disadvantage of this area

is that of communications, both road and rail. As now constituted, extensive rehabilitation and construction would be necessary before effective use of the peninsula for any military purpose could be made. It should be remembered that railway equipment furnished for such rehabilitation would be unusable in most other areas of Europe because of the differences in gauge. Another serious disadvantage is the scarcity of water on the central plateau.

The strategic advantages of the peninsula have been discussed earlier in this article. These same advantages make the denial of this region to a possible enemy of equal importance. As the ultimate defense to effect such denial might be made within the peninsula itself, the natural defensive assests of the area should be appreciated.

The terrain is ideal for defense. The lack of good landing areas on the coasts and routes of approach into the interior afford protection from a seaward invasion, while the Pyrenees provide a formidable obstacle to an overland approach from the north. The difficult nature of the few approaches from the coast to the central plateau, and of the mountain ranges thereon, would make the task of an invading force extremely difficult in the event of an initially successful penetration by land or sea.

An assessment of the military value of the peninsula must take into consideration both the advantages and disadvantages. Some geographical factors, such as the rugged and mountainous terrain found throughout the peninsula and the restrictive nature of the passes through the Pyrenees, may be considered assets from a defensive standpoint but are liabilities offensively. However, cognizance should be taken of the fact that the strategic location of the Iberian Peninsula is advantageous for the prosecution of *either* type of operation by a force occupying it.

If the free nations mobilize and direct their strength properly, they can support whatever military effort may be necessary to avert a general war or to win such a war if it comes. The resources are on our side. The only question is whether they will be used with speed and determination. The answer will depend upon unity of purpose and of action—unity among the free nations, unity here in the United States.

President Harry S. Truman

The Army and Foreign Civilian Supply

Colonel Louis M. Gosorn, *General Staff Corps*
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The views expressed in this article are the author's and are not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

Foreign Civilian Supply An Army Responsibility

THE subject matter of this article, the supply of foreign civil populations by the Army, concerns a vital and one of the most interesting responsibilities of the Army. Yet perhaps its outstanding characteristic is that it is relatively unknown, or goes unrecognized for the most part as a military responsibility. Even today, when this function is described, the initial reaction usually is surprise that such an Army responsibility exists, and an assumption that it is an extra trimming added by the United States which is completely misplaced as a military function. To the average citizen, the phrase "The Army and Foreign Civilian Supply" would, no doubt, call to mind the familiar picture of soldiers distributing their cigarettes, chewing gum, and candy. Such reactions are understandable on the part of laymen when one considers the seeming unmilitary nature of the subject matter. Unfortunately, such reactions seem to be shared all too often by some of those concerned with the planning and execution of military operations on all levels. This is due, I believe, to a lack of familiarity with the Army responsibility for foreign civilian supply, the history of its development, the means by which it is fulfilled, and the favorable or unfavorable impact on military operations which will inevitably follow the success or failure with which this function is performed. In part, this lack of familiarity probably is due to a natural preoccupation of military personnel with matters of a more traditional military nature, and certainly it is in part due to the lack of emphasis this subject has received in the training of staff personnel and in written doctrine.

Written Doctrine

Actually, there is no single field or technical manual on the subject. Field Manual 27-5, *The United States Army and Navy Manual of Military Government and Civil Affairs*, generally does point up the existence of the foreign civilian supply problem, and, of course, there are specific Special Regulations such as SR 795-25-1, *Supplies for Foreign Aid Programs*, which cover current detailed supply procedures. These, at best, paint a somewhat vague

The supply of foreign civil populations is a basic consideration in operational planning at all levels. As an integral part of military operations, it aids in achieving purely military objectives, if properly carried out

and limited picture of the operation as a whole.

Basic Concept of Foreign Civilian Supply

The basic approach to this subject, which I ask that you adopt and pass on as a fundamental principle, is that the supply of foreign civil populations is an integral part of military operations; that properly carried out, it aids the achievment of purely military objectives; and that it must be a basic consideration in operational planning at all levels.

Development of the Army's Foreign Civilian Supply Responsibility

International Law and Custom

The responsibility on the part of a country engaged in military operations for the well-being of civil populations, within territories occupied or liberated by its forces, had been recognized by international law and custom for a long time. Nevertheless, as a practical matter, up until World War II, this concept remained, for the most part, theoretical. It had received very little attention in military planning and had required little expenditure of effort or funds during military operations.

Change Effected by World War II

The great change in the nature of warfare brought about by World War II made a very live force of this responsibility and made it clear that its fulfillment, aside from constituting a humanitarian nicety, was a purely military necessity. This modern warfare, with its complete discarding of the former type of well-defined battle areas, its large numbers of highly mobile ground troops engaged over enormous geographical areas, the tremendous destruction by aerial and artillery bombardment, and, most particularly, the great emphasis on strategic bombing, had an immediate impact on purely civilian populations on a scale never before experienced. The economic disruption, and the denial of the means of sustaining life and health, caused by this new type of warfare was nationwide. Whether the population was a cooperative one of a liberated area, such as France, or an antagonistic one, such as that of Germany, the inevitability under such conditions of large-scale disease and unrest and the seriously adverse effects on any military operation was clearly foreshadowed.

Experience in the Field

Hard experience in the field demonstrated that large numbers of civilians without shelter, food, fuel, and medical care, or the means of obtaining these and other bare essentials of life, became a grave threat to the security of our military operations, to our lines of communications and supply, and to the very health and safety of our troops. Thus, General Eisenhower cabled from Italy in the winter of 1943 that:

> It should be understood that our requisitions for food for the Italian population are not based on considerations of humanitarianism or any other factor except that of military necessity. The conditions in Southern Italy and Sicily are such that unless reasonable quantities of food are supplied very promptly, we will experience sabotage, unrest, and a complete cessation in all those activities necessary to our advance.

General MacArthur from the Pacific, in the same vein, notified Washington to either step up civilian supply or send more troops.

Although the military responsibility for foreign civilian supply is now firmly established, it was only after about a year of our taking the offensive in World War II that the importance of this civilian supply problem had made itself felt. It was the actual experiences of our field commanders which gradually pointed toward the inescapable conclusion that, at least for the period of active military operations, such supply must be planned for and executed by the military. At the outset of the North African invasion, the responsibility for civil affairs, including

ORGANIZATION AND RELATION WITHIN THE DEPARTMENT OF THE ARMY OF THE ASSISTANT CHIEF OF STAFF, G4, THE SUPPLY DIVISION, AND THE INTERNATIONAL BRANCH
SECRETARY OF THE ARMY
CHIEF OF STAFF
ASSISTANT CHIEF OF STAFF G1
ASSISTANT CHIEF OF STAFF G2
ASSISTANT CHIEF OF STAFF G3
ASSISTANT CHIEF OF STAFF G4
RESEARCH AND DEVELOPMENT DIVISION
SERVICE DIVISION
PROCUREMENT DIVISION
SUPPLY DIVISION
DISTRIBUTION BRANCH
INTERNATIONAL BRANCH
REQUIREMENTS BRANCH
FOREIGN MILITARY AID BRANCH
MAINTENANCE BRANCH
SUPPLY PLANNING BRANCH
INTERNATIONAL BRANCH
ADMINISTRATIVE SECTION
CHIEF OF BRANCH
SECRETARIAT
PLANNING AND LIAISON SECTION
SUPPLY OPERATIONS SECTION
RECORDS AND ACCOUNTS SECTION
REQUIREMENTS UNIT
SUPPLY AUTHORITY UNIT
MOVEMENTS UNIT

FIGURE 1

civilian supply, had been delegated by President Roosevelt to the State Department and the Lend-Lease Administration, but within a few days of our landings in North Africa it became evident that no civilian agency could effectively plan or carry out such a mission during military operations, and the Army immediately was forced to assume actual responsibility. As a result, even though nominal responsibility remained in the civilian agencies, the Army immediately took steps in its planning for the imminent Sicilian and Italian operations to authorize the Technical Services to obtain civilian supplies to support these planned operations. In recognition of this experience in Africa, the President, in November 1943, formally designated the War Department as the agency responsible for the distribution of relief supplies in all military areas. From that point forward, the Army had the legal responsibility and completely assumed the leadership for the execution of all foreign civilian supply, being supported to the fullest by the various civilian agencies of the Government concerned.

An indication of the magnitude of the Army civilian supply task performed in World War II is gained by considering the fact that, during the 2-year period September 1943 through 1945, some 7 million tons was provided from the United States at a cost of approximately 1 billion dollars. That a substantial amount of these supplies was shipped prior to the termination of active military operations, when theater commanders obviously could not call forward anything not vitally necessary to the military operation, points up sharply the importance given civilian supply in the thinking of those immediately concerned with the problem of securing a victory.

The Army responsibility for civilian supply continued for years through the post-hostility occupation period in Germany and Austria until it was assumed by the State Department, and it is still in operation in Japan.

As I have emphasized, it is now accepted doctrine that, at least during the phase of active military operations, the responsibility for the supply of the civilian population cannot be separated from that for supply of the military.

Disease, starvation, and unrest must be avoided. It is the military in the field which must, of necessity, control the supply pipe line, set the priorities, and be able to get the particular item needed to the right place at the right time to support the military operation, whether it be ammunition for troops or food for civilians. The only sound solution is to see that, in the planning of operations, preparation is made to furnish the minimum of supplies and assistance necessary to supplement indigenous resources.

Termination Point of Army Responsibility

The question of determining precisely the point at which the military responsibility should end still remains somewhat unsettled. The problem of placing primary responsibility for logistical support during the periods of post-hostility occupation when relative stability has been achieved is a troublesome one involving, aside from relief, the matters of rehabilitation and reorientation. Such support entails many complex political and economic considerations as well as those of military significance. In connection with this, it is interesting to note that during World War II, when the Army was forced by circumstances to include civilian supply in its planning for the Sicilian—Italian operations, the Army itself thought that its civilian supply responsibility could cease 90 days after the invasions. As we know now, experience quickly modified this view. No doubt future experience will point the way to the most desirable and effective solution of this matter. Possibly there is no single "pat" formula other

FOREIGN CIVILIAN SUPPLY PROCEDURE
ESTIMATED REQUIREMENTS
G4
INTERNATIONAL BRANCH,
SUPPLY DIVISION
REVIEWS, BUDGETS, APPROVES,
AUTHORIZES SUPPLY—EITHER
THROUGH TECHNICAL SERVICES
OR OVERSEA COMMAND
APPROVED PART PROGRAM
(ACTS AS SUPPLY AUTHORITY)
APPROPRIATE
TECHNICAL SERVICE
INITIATES SUPPLY ACTION
SUPPLY ACTION
APPROVED PART PROGRAM
AUTHORIZING OVERSEA SUPPLY
OVERSEA
COMMANDS
SUPPLIES
PORT OF
EMBARKATION
SUPPLIES
DEPOT
VENDOR
CONTROL OF MOVEMENT TO OVERSEA AREAS:
1. PHASED
2. CALL FORWARD

FIGURE 2

than the Army stand-by that it will "depend upon the situation and terrain." For the purpose of this article, I believe it is sufficient to point up this question. Later, I will note some of the present planning in this respect with regard to Korea.

The Civilian Supply Operation

Basic Elements of Foreign Civilian Supply

The fundamental elements which go to make up foreign civilian supply by the Army, and the tools utilized to effect this supply, are the same ones we have become familiar with in supplying the purely military needs of our armed forces. Broadly stated, these elements are the development and approval of requirements, the obtaining of the approved requirements, and their movement and ultimate distribution. By order of the Joint Chiefs of Staff, primary responsibility within the armed services for foreign civilian supply has been placed upon the logistics staff. Special Regulations 10-140-1, *Organization and Functions, Department of the Army, Logistics Division, General Staff*, delegates this responsibility more specifically to the Assistant Chief of Staff, G4. As in the case of supplying purely military needs, the major operating responsibilities fall upon the Army Technical Services.

Development of Requirements

Let us now examine these basic elements as they function in foreign civilian supply. The development and approval of foreign civilian requirements are, of necessity, more complex matters than in the case of purely military requirements because of the many unknown factors involved. There are no convenient Tables of Organization and Equipment for ready references. From a planning standpoint, the possible requirements are extremely diverse, since they may include any type of items required to meet the basic needs of a civilian population, during or subsequent to a military operation, when the normal sources of production or supply have been eliminated or curtailed. The recipients are practically unlimited geographically, since they may include friendly liberated or enemy or neutral occupied populations anywhere on the globe, depending upon the subsequent course of military operations. Climate, customs, and general mode of life of the recipient population must be taken into account. For example, beef is not provided for Hindus or pork for Mohammedans because of religious restrictions. Since the requirements are of a civilian nature, such matters as the impact of United States domestic consumer needs for such supplies and on the domestic price structure must be carefully considered. Finally, the fact must be recognized that civilian requirements are very sensitive to actual military developments and that they can undergo sudden drastic change with regard to their entire nature, aside from normal quantitative changes.

It thus becomes clear that civilian requirements must be dictated in the first instance by the needs and experience of the field commander. He is in the best position to estimate such requirements and to adjust them to the limitations of his supply line and his tactical situation. The theater commander estimates these requirements by type, quantity, and scheduled delivery dates in the theater to cover at least 6 months, if possible. In doing so, he takes into account certain special factors. He knows that as an area is occupied or liberated, initial civilian supplies should be those which lend themselves to simple, speedy distribution and immediate consumption without requiring major preparation or handling, such as canned foods, ready-made garments, and tents. He likewise takes into account that as time goes on and a particular area becomes more stabilized, supplies of a bulk type are more practical; foods requiring preparation, cloth to be made into clothing, lumber

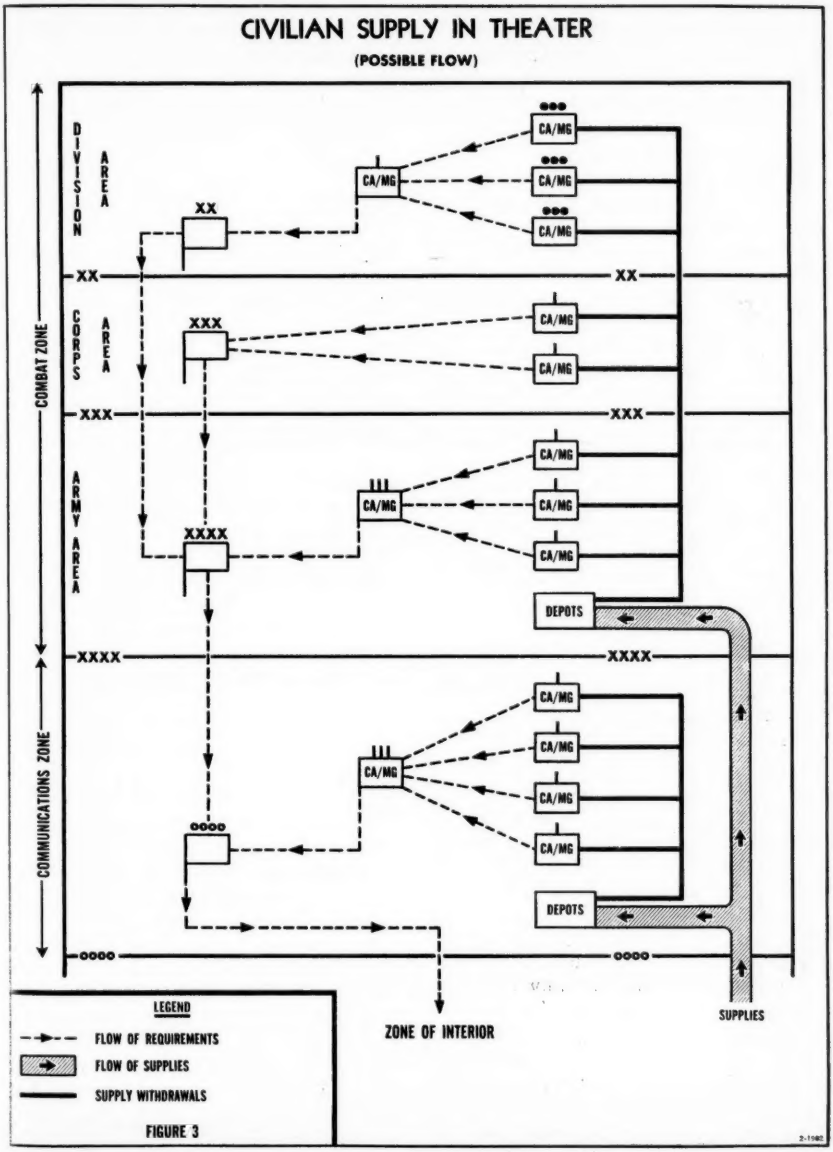

CIVILIAN SUPPLY IN THEATER
(POSSIBLE FLOW)
COMBAT ZONE
COMMUNICATIONS ZONE
DIVISION AREA
CORPS AREA
ARMY AREA
XX
XXX
XXXX
CA/MG
DEPOTS
SUPPLIES
ZONE OF INTERIOR
LEGEND
FLOW OF REQUIREMENTS
FLOW OF SUPPLIES
SUPPLY WITHDRAWALS

FIGURE 3

for shelter, and coal for fuel. He particularly must bear in mind that, from a long-range standpoint, the raw material types take up less of the vitally needed shipping space and also reduce over-all purchasing costs. In estimating food requirements, he considers such matters as local dietary habits and the important differences between the requirements of urban and rural areas—the former being almost completely dependent upon outside food sources and the latter, to a large degree, being self-sustaining. He carefully considers indigenous resources and he may find that relatively small amounts of fertilizer and seeds, salt for preserving fish and vegetables, or spare parts for industrial machines will result in quick local production of large amounts of needed supplies at small cost and with the resultant freeing of valuable shipping space. With regard to medical supplies as well as food, he considers the important question of the availability of refrigeration facilities.

Approval and Furnishing of Requirements

The theater commander's estimated long-range requirements are forwarded to the International Branch, Supply Division, Office of the Assistant Chief of Staff, G4, the agency which currently has the general staff responsibility for the supervision of the foreign civilian aid programs of the Army. Figure 1 shows the organization and relation within the Department of the Army of the Office of the Assistant Chief of Staff, G4, the Supply Division, and the International Branch. Here, the requirements are reviewed for validity, adequacy, and feasibility. This, in many instances, requires the closest consultation with the Army Technical Services, the Munitions Board, the G3, and other interested government agencies such as the Departments of State, Commerce, and Agriculture. When the requirements have been approved, the appropriate Technical Service is authorized to furnish the items in accord with scheduled phasing, either from stock or by purchase; or the theater commander is authorized to utilize his oversea stocks; or, in some cases, to effect purchases overseas. The supply authorization is presently accomplished in the form of a document, called a "Part Program" issued by the International Branch which embodies all the pertinent information required for the initiation of supply action by either the Technical Service or the theater commander. In contrast to meeting purely military requirements, there is great opportunity in civilian supply to substitute types of items. This permits the avoidance of expensive supply through the utilization of surplus, excess, and used items.

Initial Automatic Supply

A theater commander, at the start of hostilities, must be prepared to cope with the civilian supply problem immediately. Although, as stated earlier, Tables of Organization and Equipment do not exist and there are many unknowns from the standpoint of planning, military operations cannot await the on-site estimation of requirements and their review, approval, and trip through the supply pipe line. There are available certain facts and experience upon which initial shipments can be automatically planned for and made. For example, in the case of food, the total population, dietary habits, and climate can be ascertained, once the location and time of planned operations are known. Indigenous resources can be estimated, general minimum calorie requirements to sustain life applied, and a total estimated food requirement arrived at upon which automatic initial shipments can be allocated. This total estimated food requirement will be adjusted later, according to actual on-the-ground experience dictates.

Spot Requirements

As in the case of purely military supplies, there always will be spot require-

ments, such as immediate need for large amounts of particular medicines to treat a sudden epidemic. These, of course, are handled on an emergency basis.

Stability of Supply Operation

Although great flexibility must exist in civilian supply operations, it is vital that, as in the case of military supplies, every effort be exerted to avoid the supply function being performed on a crisis basis. We have enough experience now to enable us to anticipate bare initial requirements with reasonable certainty. We know that food, shelter, clothing, fuel, and medicines will meet the most immediate needs. To operate efficiently, the civilian supply operation must parallel the military supply operation and must utilize, to the greatest extent possible, normal military supply channels. We must have on hand certain basic stocks and maintain reasonable reserves in order that we may supply from and replace these stocks and thus achieve stability of supply. Similarly, the civilian supply must be planned along with military operations in order that the logistical requirements of shipping space and delivery phasing may be assured. Figure 2 shows the civilian supply operations up to the point of receipt of supplies or supply authorizations in the theater.

Supply Channels

In theaters of operation, the greatest possible use must be made of normal supply channels to effect civilian supply. This enables the most efficient usage of personnel, transportation, communications, and storage space and is best calculated to ensure that the supplies reach their proper destination and serve the purpose intended.

Civil affairs, in which civilian supply plays a vital role, is a command responsibility. The theater commander's actual organization for civil affairs will depend on many factors—the military situation, the forces available, the particular civil problems to be met, the status of the local government and economy, and many other conditions. However, the theater commander will have specially trained personnel whose primary duty will be to advise him concerning civil affairs matters and to execute his policies with regard thereto. Aside from staff personnel at appropriate headquarters, probably down to and including division level, there will be units of such specially trained personnel to supervise the actual execution of civil affairs policies. These units will vary in size and make-up depending upon the particular situation; being organized as platoons, companies, and, in larger units, as groups. The responsibility of such units might be established for a particular city or town, or it might be fixed as including whatever area is controlled by a particular military command, such as a field army or division. These civil affairs units will be attached, for administrative purposes, to the appropriate military command. In a combat zone, where the need for unity of command is vital, all orders concerning civil affairs will be issued through the military chain of command. In a noncombat area, such as a communications zone, there may be a separate chain established through the various echelons of civil affairs staffs and units for civil affairs matters.

However, no matter what particular organizational scheme may be adopted for civil affairs, normal supply channels should be used for civilian supplies, insofar as possible. Port facilities frequently are limited and the theater commander, through his staff, controls the flow of all supplies, civilian and military, through the ports and sets the necessary priorities. The G4 has supply responsibility in support of the military operation and this must include the assuring of the flow of all supplies, civilian and military. The clogging of ports or any other part of the supply pipe line must be avoided. The

supply officers of the appropriate military commands should make the necessary arrangements to ensure the proper flow of civilian supplies through the military pipe line from the ports and the army technical services should be prepared to process these supplies as they do those of a purely military nature. Just as a field artillery group or battalion draws the ammunition, guns, or prime movers it requires to accomplish its mission, so should civil affairs units draw the supplies needed to accomplish their mission.

Naturally, the details of the supply arrangements may vary. For example, in some areas it might be found more advantageous to establish separate depots for civilian supplies; in others to utilize the normal depot system. In cases where the organic transportation of forward civil affairs units is adequate it might be found more desirable to service such units from army depots or even the communications zone, thus relieving more forward combat echelons of certain civilian supply responsibilities. Nevertheless, whatever variation in detail may be required, or desired, to meet a particular situation, the basic principle of using normally recognized and accessible supply channels must be adhered to if the military operation is to be supported efficiently. To do otherwise is, as experience has shown, to invite confusion, lack of co-ordination at the ports and at other places along the supply pipe line, duplication of effort, waste, and a failure in accomplishing the civilian supply mission.

In order to ensure that civilian supplies reach their proper destination at the time required, they should be carried through the supply channels down through the lowest, most appropriate military unit for issue to the particular civil affairs unit responsible for supervising their actual distribution. Figure 3 sets forth diagrammatically a possible system for the flow of civilian supplies within a theater of operations.

With regard to the actual distribution of the supplies, experience has shown that, as in the case of most civil affairs operations, the best results are obtained by having the actual distribution performed by members of local governments or organizations under the supervision of the military. Thus, in Korea, the actual handling of the distribution has been by Koreans under the supervision of health and welfare teams consisting of military personnel and United Nations civilian representatives including Red Cross personnel.

Korea

It would be well here to consider a little in detail the present civilian supply operation for Korea. Aside from being an actual current example, it has some novel aspects in being in support of a United Nations military operation and it demonstrates, in a striking manner, the magnitude of the problem despite the relatively small area involved.

Estimated Requirements For Fiscal Year 1951

As a result of our World War II experience, after the Korean conflict commenced, President Truman placed complete responsibility for civilian supply in support of the military operation upon the Army in September 1950. As of 1 January 1951, some 87 million dollars of civilian supplies had been furnished, of which approximately 65 million dollars was financed by the Army and some 22 million dollars was donated by member states of the United Nations in the form of actual goods. It is presently estimated that for the year ending 1 July 1951, the over-all minimum civilian relief requirements for Korea, in support of the military operation, will amount to approximately 150 million dollars. These total requirement estimates do not include a large quantity

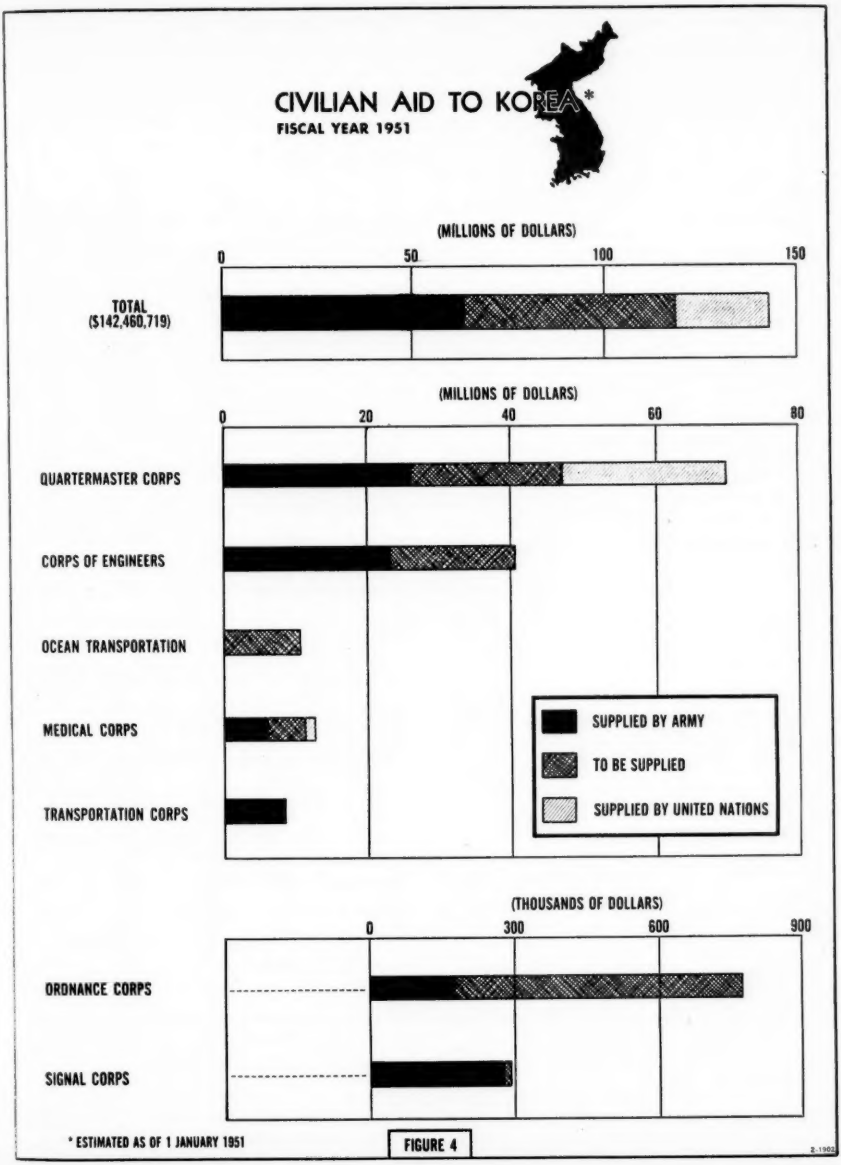

CIVILIAN AID TO KOREA*
FISCAL YEAR 1951
(MILLIONS OF DOLLARS)
0
50
100
150
TOTAL
($142,460,719)
(MILLIONS OF DOLLARS)
0
20
40
60
80
QUARTERMASTER CORPS
CORPS OF ENGINEERS
OCEAN TRANSPORTATION
MEDICAL CORPS
TRANSPORTATION CORPS
SUPPLIED BY ARMY
TO BE SUPPLIED
SUPPLIED BY UNITED NATIONS
(THOUSANDS OF DOLLARS)
0
300
600
900
ORDNANCE CORPS
SIGNAL CORPS
* ESTIMATED AS OF 1 JANUARY 1951

FIGURE 4

of items which serve a common military and civilian use, such as railroad rolling stock and earth-moving equipment, since these are treated as purely military items although often serving a dual military and civilian purpose. Figure 4 shows the estimated civilian supply situation for the fiscal year 1951, in terms of type of items by Army Technical Services, estimated as of 1 January 1951.

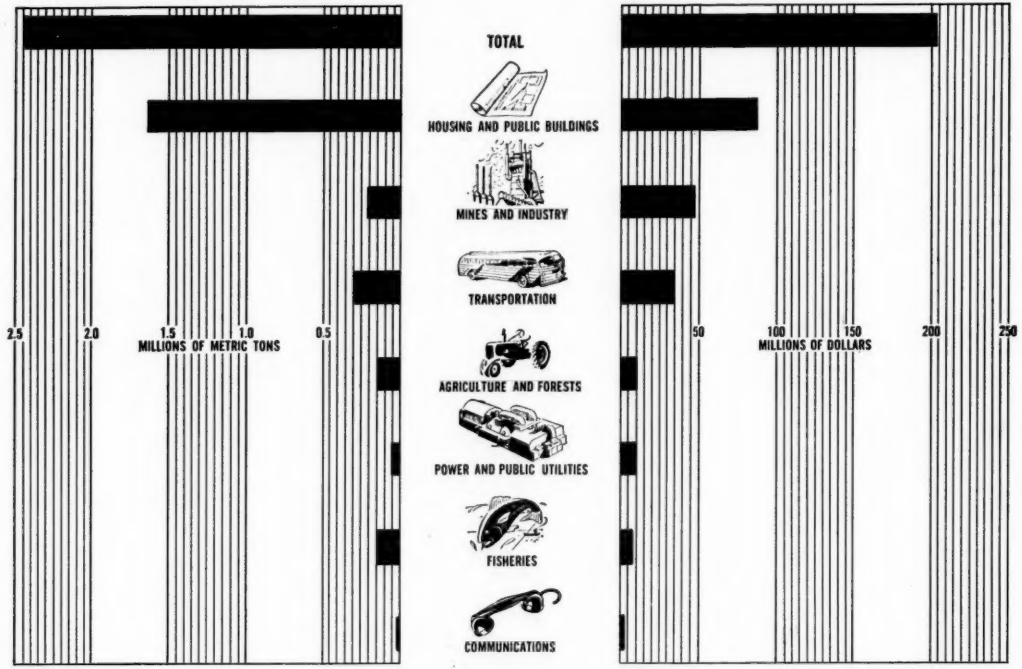
Damage to South Korean Indigenous Resources

Some indication of the disruption and damage to indigenous resources in Korea, and the resultant immediate need for civilian relief to support the military operation, is furnished by an on-the-spot survey of damage in South Korea made, as of November 1950, from the standpoint of what it would take in the way of imports to merely restore South Korean resources to the preconflict level of 25 June 1950. This survey, which excluded direct relief items, estimated that some 2½ million metric tons of imports at a value of approximately 204 million dollars would be required. This estimate will prove most conservative in view of the military developments which have occurred since it was made, but it does furnish a valuable guide. Figure 5 shows the import requirements indicated by the survey in terms of basic categories. Direct relief items such as food, clothing, and medical supplies are not included.

United Nations Aspects of Operation

The Korean civilian supply operation is a little more complicated than usual because of the fact that the military operation is being carried on by the United Nations. The United States Army has been given responsibility for logistical support as a part of the unified command. In general, the supply procedure discussed earlier has been followed. The theater commander determines the long-range requirements initially, they are reviewed by the International Branch, G4, and supply is authorized either from the Zone of Interior or from overseas. However, one additional factor has been added to this operation by virtue of the United Nations aspect. Many of the member states of the United Nations naturally desired to furnish relief assistance. In addition, voluntary nongovernmental relief organizations also wished to contribute supplies. Arrangements were made, therefore, for such items to be offered to the United Nations which forwards the offers to the appropriate agency of the unified command, in this case the International Branch, G4, for its recommendations as to acceptance. These offers are analyzed in the office of the G4 in terms of the known or anticipated requirements and, if deemed desirable, acceptance is recommended. In some instances, the theater commander must be consulted before a final decision can be made. Upon formal acceptance by the United Nations, there then remains such problems as scheduling shipments and arranging transportation. In some cases, the costs of transportation of these donations are borne by the donor; in others, by the United States. It should be noted that these donations do not in all instances serve to reduce the over-all requirements since some of the donated items, although deemed acceptable, are not essential and it would not have been necessary to obtain them in the absence of the donation. As mentioned earlier, as of 1 January 1951, these donations amounted to approximately 22 million dollars. Donations have included a wide variety of items such as food, blankets, medical supplies, and textiles, and have come from all corners of the earth. Figure 6 shows the relief contributions made through the United Nations by participating countries, estimated in terms of dollars. Some idea of the logistical problems involved with regard to donations may be gained from one par-

IMPORT REQUIREMENTS FOR SOUTH KOREA TO RESTORE 25 JUNE 1950 LEVEL*



* AS OF NOVEMBER 1950
DOES NOT INCLUDE SHIPPING COSTS APPROXIMATING $50,000,000
DOES NOT INCLUDE DIRECT RELIEF ITEMS SUCH AS FOOD, MEDICINE, AND CLOTHING

FIGURE 5

2-1902

ticular case. The Government of Thailand made 40,000 tons of rice available for Korea. After acceptance and arrangements had been made to pick up this rice in Thailand, it developed that because of harbor conditions the rice could not be bulk loaded and had to be bagged. The ships were on the way. Thailand did not have the necessary bags. It then developed that India had 400,000 bags to donate. The Army made arrangements to move the bags from India to Thailand in time to be loaded to meet the ships en route to pick up the rice.

The Refugee Problem

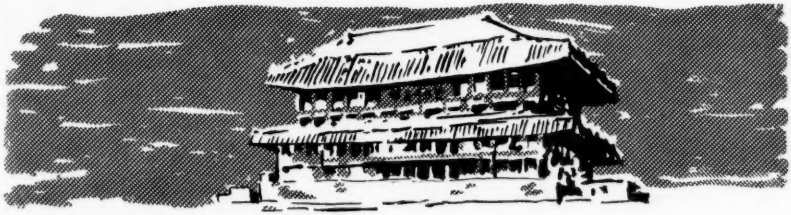
Clearly, the military developments in Korea, commencing in late November 1950, have basically affected and aggravated the civilian aid problem. Undoubtedly, some of the durable items furnished prior to these developments have been overrun or abandoned and will have to be resupplied. In addition, hundreds of thousands of North Koreans have fled to South Korea and swelled the number of aid recipients. Underlying the entire problem and affecting all phases of civilian aid is the unavoidable growth of refugee concentrations within reduced areas. This in no way reduces the number of recipients of aid but rather complicates the furnishing of the aid and, to some extent, increases the requirements. It also must be recognized that many of the items furnished, such as food and medical supplies, are consumed and must be continually replaced as long as the operation continues.

Planning for Post-Hostility Logistical Support

Concerning the question of a cut-off date for Army civilian supply responsibility, I mentioned earlier that some planning was in progress for Korea on this subject. The United Nations already has established a civilian agency to take over the responsibility for the reconstruction of Korea, namely the United Nations Korean Reconstruction Administration (UNKRA). An agent general to head this organization already has been appointed. At what point this organization actually will begin to function in Korea must, of course, await military developments, but it presently seems clear that upon the cessation of hostilities and the achievment of relative stability the primary responsibility for civilian aid in Korea will shift from the Army to UNKRA. It is possible, nevertheless, that although this responsibility may shift, the Army, because of its know-how and supply machinery, may be asked to execute the actual supply task as agent for UNKRA.

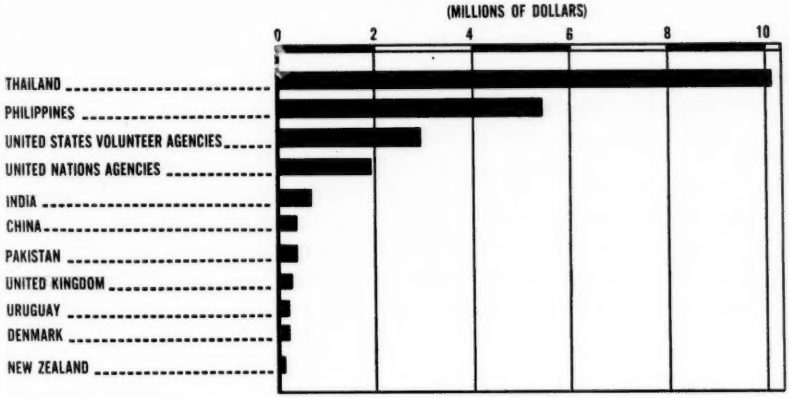
Rehabilitation

It is, of course, axiomatic that it is far less costly to rebuild indigenous resources and productive capacity than to continue direct relief. The political and economic considerations involved in such rehabilitation probably point toward the desirability of civilian agencies rather than the military being charged with such a task. Furthermore, military funds are, of necessity, limited and, except during actual operations, it would appear that they probably should not be chargeable for such programs. However, as I have indicated earlier, the Army has had primary responsibility for foreign civilian supply for long periods during phases of post-hostility occupation, even after relative stability has been achieved. During the period 1 June 1945 through 31 December 1950, a total of approximately 29 million long tons of supplies, at an approximate value of 4 billion dollars, was financed and processed by the Army through its supply channels, for the most part, under special congressional appropriations for "Government and Relief in Occupied Areas." Certainly this has constituted an outstanding supply operation, over and above that performed in direct support of and during the actual military operations.



UNITED NATIONS CIVILIAN AID DONATIONS TO KOREA--- FISCAL YEAR 1951

(BY DONOR COUNTRY)



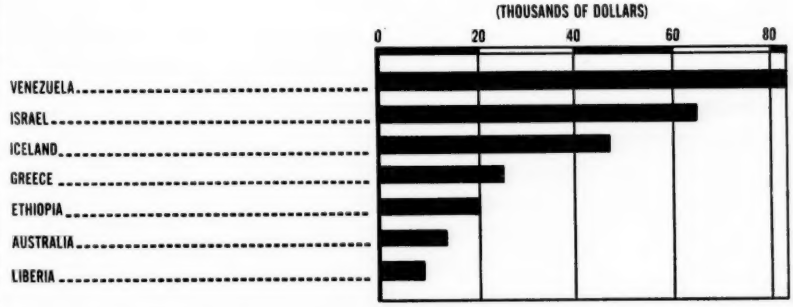


FIGURE 6

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Army Participation in Other Foreign Supply Operations

Finally, I should like to call your attention to the existence of other substantial foreign supply operations which have been and are presently being participated in by the Army. These should not be confused with the supply responsibility discussed here. First, there is the Mutual Defense Assistance Program which deals purely with the matter of assisting friendly foreign countries to build and maintain their military potential and under which we have furnished and are furnishing purely military supplies such as guns, tanks, and planes. Second, the Army, because of its experience in foreign civilian aid and its existing machinery for such supply, has, in effect, been utilized as a foreign civilian supply agent by such United States governmental or international agencies as the Economic Co-operation Administration (now known as the Mutual Security Agency) and the International Refugee Organization for carrying out their own particular programs. In the latter type, although they are foreign civilian aid programs, the Army, of course, has no responsibility for determining or reviewing requirements, but merely furnishes technical advice and carries out the supply or shipping requests, receiving the necessary funds from the requesting agency.

Victory is won only by a proper combination of various powerful weapons—primarily infantry, artillery, armor, and air properly supported by the other arms and services. It is as important to recognize the importance of the battle team as it is to recognize that much of the success of the team depends on the support it receives.

General J. Lawton Collins

We, as a nation, are the greatest single force for peace in the world today. Our greatest danger will lie in any inclination to forget or dodge the responsibilities which are ours. If the philosophy of the people does not include a spirited and realistic military attitude, then there is little hope that we can live up to our obligations in a realistic world. All the goodwill on earth will not, by itself, establish a respected military posture in the eyes of the world.

Lieutenant General Manton S. Eddy

MILITARY OBSERVATION IN THE LAND OF BALI

Major Charles A. Wolfe, *Infantry*
Student, Command and General Staff College

The views expressed in this article are the author's and are not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

The Indonesian Problem

TO MOST occidentals, the former Netherlands East Indies are pictured as areas of excessive heat, dense undergrowth, and continual rain. Actually, Indonesia, which is the new name for the Indies, has a wet season of 3 months' duration; the most populated island, Java, has no jungle; and the temperature ranges in the eighties throughout the year. During the past decade, this once peaceful land astride the equator has been immersed in a revolutionary bath. Underneath its towering coconut palms and rubber trees, across its rice paddies, and through its tea and sugar estates, full-scale and guerrilla warfare and armed banditry have raged since 1942, causing serious problems of political instability and economic and social distress.

The Indonesian problem, like the basis of many recent upheavals, had its origin in the past. The basic issue was one of independence.

The islands which comprised the Netherlands East Indies were ruled almost continuously by the Netherlands from 1595 to 1949. In 1922, their status as colonies was abolished and they became an integral part of the Netherlands Kingdom.

Invaded by the Japanese in March 1942, the Indies were occupied by them until August 1945. In that month, with the defeat of the Japanese, the more aggressive members of the Indonesian Independence Movement led by the present President of Indonesia, Sukarno, took control of parts of Java and Sumatra, the two largest islands, and set up and demanded recognition for an Indonesian Republic. British and Indian troops arrived on 29 September under orders of the Allied Supreme Command to disarm and accept the surrender of the Japanese and to maintain law and order until the lawful government could be restored. There is evidence that there were skirmishes between the Indonesian troops, regular and irregular, on the one hand, and the British and Indian troops on the other, during the 14 months that the British remained. In addition, as Netherlands troops returned to the islands, the new Republic resisted the resumption of Netherlands authority with the result that full-scale warfare broke out in Java and Sumatra and continued intermittently until August 1949. Added to the turmoil was the constant irritation of Communist agitation, which included an abortive uprising starting at

As long as the UN continues to function as a force in the pacific settlement of international controversies, observers will be required to furnish information and verify the fulfillment of UN recommendations

Surakarta on 16 September 1948, and harassment by fanatical religious groups desiring to set up a separate all-Moslem state.

The fighting of this period primarily was guerrilla warfare centered on the islands of Java and Sumatra. In general, the Dutch troops, totaling approximately 150,000, had complete control of the major cities and most of the communications system, in addition to almost complete mastery of the air and the surrounding seas. The Indonesians, with only small arms, little artillery support, and no air force or navy, controlled the hinterland. On paper, the Indonesians had approximately 400,000 troops. However, only 50,000 were equipped with modern arms. Indonesian units in the field were controlled from the Residency of Djokjakarta, Java.

The events of the period demonstrated two points. First, the Netherlands was unable to suppress the revolutionary movement. The story of rising nationalism that had been written in India, Burma, and the Philippines was being repeated in Indonesia. Second, the Netherlands, although unable to control the situation, was reluctant to release the islands completely. This reluctance was understandable in view of the fact that the Indies were rich in natural resources, had vast potentialities as a market for consumer and capital goods, and served as a population outlet for a crowded homeland. The realization of these assets, however, depended on the maintenance of peace and security which the Netherlands, since 1942, had been unable to enforce.

United Nations Intervention

The United Nations Security Council first became involved in the problem on 21 January 1946 when the Ukrainian Soviet Socialist Republic alleged that military action against the Indonesian population, by British and even Japanese forces, threatened external peace and security, and proposed that the Security Council investigate. This proposal was rejected.

On 25 March 1947, after 2 years of negotiations interspersed with hostilities, the Netherlands and the Republic signed the Linggadjati Agreement, under British auspices, which provided, among other things, for Dutch recognition of the *de facto* authority of the Republic in Java, Madura, and Sumatra.

On 21 July, after claiming that the terms of the agreement had been violated, the Dutch resorted to a "limited police action" against the Republic.

Establishment of the Good Offices Committee

On 1 August, the Security Council called on the belligerents to cease hostilities. On 25 August, the Council requested its members who maintained career consular representatives in Batavia to submit reports on the situation in Indonesia. On the same date, the Council established the Good Offices Committee to assist in the pacific settlement of the dispute. Upon receiving a report that the cease-fire order was not being obeyed, the Good Offices Committee, consisting of representatives from Australia, Belgium, and the United States, began functioning in Batavia on 27 October 1947.

Under its auspices, the Dutch signed a truce, the Renville Agreement, on 17 January 1948. Under the terms of this agreement, a Republic of Indonesia was to be created within a sovereign, federal United States of Indonesia which was to remain under the Dutch Crown.

On 18 December 1948, however, the Dutch instituted another "police action" against Republican areas and the Republican leaders were seized.

The Resolution of 28 January 1949

In a Resolution of 28 January 1949, the Security Council called on both parties to cease all military operations and guerrilla warfare. The resolution recom-

mended the establishment of a federal, independent, and sovereign United States of Indonesia not later than 1 January 1950. The Dutch were called upon to release all political prisoners. The Good Offices Committee was redesignated as the United Nations Commission for Indonesia (UNCI). The mission of the UNCI was to implement the resolution and to recommend the time and conditions for a round-table conference at The Hague for the transfer of sovereignty. The body of military observers that had served as military assistants and advisers to the Good Offices Committee was continued with the UNCI.

Under the guidance of the UNCI, an agreement was reached which returned the Republican Government to its historical seat at Djokjakarta. Political prisoners were released, and hostilities ceased at midnight 10 August 1949 in Java, and at midnight 14 August in Sumatra.

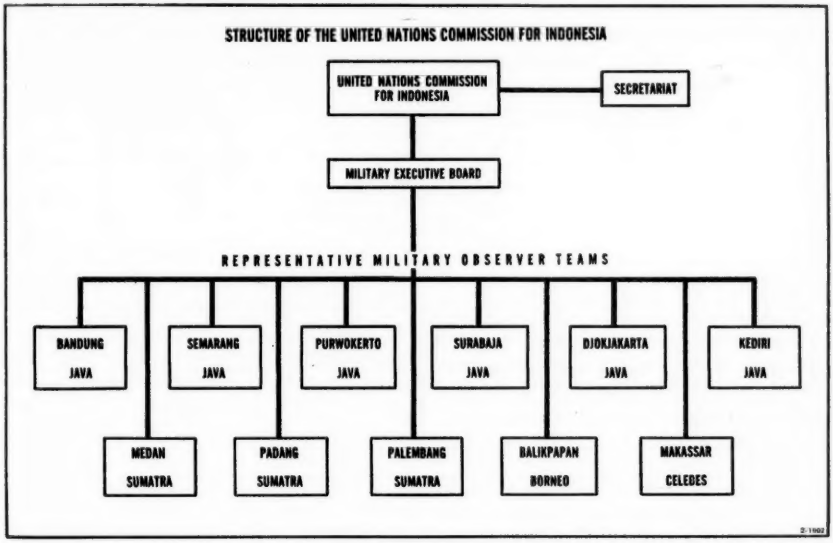
Sovereignty Transferred

On 27 December 1949, the Government of the Kingdom of the Netherlands formally transferred sovereignty over all of the Netherlands East Indies, except Netherlands New Guinea, to the Government of the Republic of the United States of Indonesia.

Importance of a Military Observer Group

Without intervention by the Security Council of the United Nations, warfare might still be raging throughout the islands that comprise the Republic of the United States of Indonesia. The general purpose of this article is to illustrate the operation of one of the specialized temporary agencies of the Security Council designed to assist in the intervention—a military observer group.

The United Nations Military Observer Group for Indonesia has been selected as an example of the importance of such a group because, within its sphere of influence, it succeeded in accomplishing a complete cessation of hostilities and a successful settlement of a problem which could have had more serious international re-



percussions. It is not intended to imply that this type of observer group would be usable in all areas where the need for such groups is likely to exist. The basic organization and function would be much the same, however, whether the group operated in the Balkans, Palestine, or Korea.

The view that observer missions are important and will increase in importance is based on two major expectations:

First, that the United Nations will survive as an organization dedicated to the achievement of maximum world stability and security through the peaceful solution of international problems.

Second, that the desire of dependent peoples everywhere for freedom will continue to be sharpened as communications and transportation facilities continue to improve, spreading information and binding the far-flung areas of the world into a more closely knit unit.

These basic expectations, in turn, infer that there will be disputes that must be negotiated and settled in an atmosphere of equality, justice, and mutual trust. United Nations mediation agencies will require facts in order to weigh each case before offering a solution. One method of obtaining these facts is through observation by an impartial body of experts. The military establishment of the United States has met calls by the United Nations for specialists by detailing qualified officers from all branches of the services to serve as military observers with United Nations commissions in Indonesia, Palestine, the Balkans, India, and Pakistan.

United Nations Commission for Indonesia

Organization

Under the provisions of the Security Council Resolution of 28 January 1949, the Good Offices Committee was redesignated as the United Nations Commission for Indonesia. It was organized as a three-nation civilian commission with representation from Australia, Belgium, and the United States. Originally, the Republic of Indonesia selected Australia as its representative; Belgium was the choice of the Netherlands; while Australia and Belgium together nominated the United States as the third member. Thus an impartial commission was assured. The representative from the United States was a member of the State Department.

A chairman, rotating weekly, was selected to serve as spokesman in discussions with the contending parties. Decisions on observer functions and reports and recommendations to the Security Council were passed by majority vote. In communications to the Council, both majority and minority views were presented.

The seat of the commission was at Batavia (now Djakarta), Java.

Function

In general terms, the UNCI was an *ad hoc* committee charged with the mission of assisting the Netherlands and the Republic of Indonesia in coming to an agreement to cease hostilities. Second, it was to help these two countries in their negotiations at The Hague for the transfer of sovereignty. Finally, it had the duty of observing and assisting in the implementation of the agreements reached at the Round-Table Conference at The Hague.

United Nations Military Observer Group for Indonesia

To aid the commission in accomplishing its objective, a body of military observers was attached. The group was established by the Council on 25 August 1947 and terminated on 6 April 1951. The size of the group, all officers, varied from time to time, the maximum number at any one time being Australia, 18; Belgium, 9; France, 5; United Kingdom, 5; and the United States, 18.

The observer group was organized into a headquarters and military observer teams.

Headquarters Organization

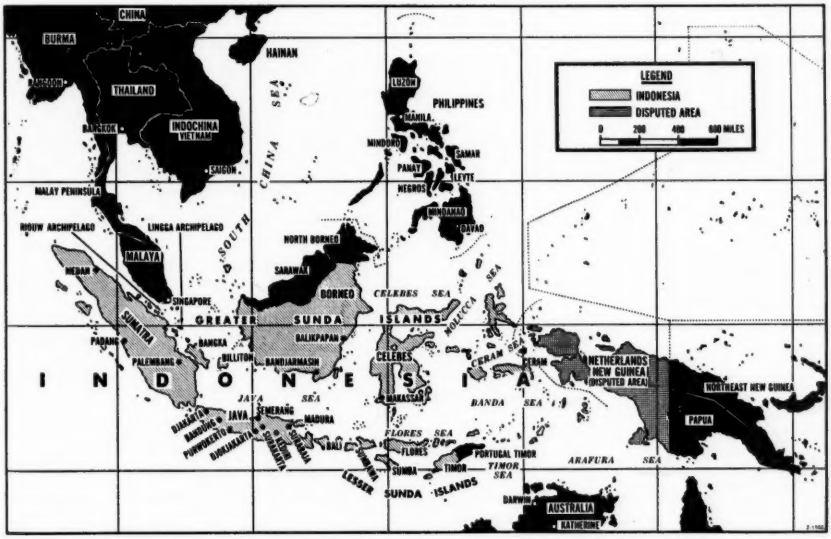
The headquarters, or Military Executive Board, located at Djakarta, consisted of the senior military observer from each of the five nations furnishing personnel. Originally, there had been a sixth member, China, who withdrew when the seat of the Nationalist Government was moved to Formosa. Those six nations were selected to furnish observers because they were Security Council members who, at that time, maintained consular representatives at Djakarta.

A chairman was selected weekly, in turn, from the three participating nations. In theory, France and the United Kingdom were only advisers to the board since they were not represented on the commission. Recommendations to the commission were passed by a majority vote of all members with any minority opinions included. Board orders to the teams required a unanimous vote. Concerning this point, it must be stated that often much time was consumed in obtaining the concurrence of all members on routine matters. In the opinion of this observer, the observer group should have been operated as a military organization, regardless of the nationalities concerned, with one commanding officer, a staff, and a chain of command.

Functions of the Headquarters

The board was the military advisory group to the commission and the latter's means of controlling the observer teams in the field. Based on commission directives, it issued specific detailed instructions to the teams as to the information desired. Reports received from the teams were analyzed and evaluated by the board as to their military, political, economic, and social significance. A summary was made of the over-all situation and forwarded to the commission together with recommendations as to possible courses of action.

It was the responsibility of the board to fix the composition and location of the



teams, the areas to be covered, and their missions.

Organization of the Military Observer Teams

The teams usually consisted of either two or four members, and seldom contained more than one officer from the same nation. Observers always traveled in pairs.

The team chairman, selected by the headquarters, had no real authority over team members, but was designated as a co-ordinator to facilitate observation and the rendering of reports. He usually was selected on the basis of experience in the area rather than rank. The fact that he was not a commander proved to be a real weakness in the handling of the teams.

It was the co-ordinator's duty to allot the daily area to be patrolled, indicate the contacts to be made, the incidents to be investigated, and the places to be visited. He was responsible for compiling the information gathered by the team members into a report to the Military Executive Board.

The membership of the team had to be changed periodically to equalize the impact of variations in living conditions on team members, to maintain impartiality in observation, and to familiarize observers with the situation in other areas.

The number and location of the teams was determined by the need to cover critical areas comprehensively. Generally, the teams were based on the islands of Java, Sumatra, Borneo, and the Celebes. The specific location of any team headquarters necessarily was dictated by the forces or situation being observed, the availability of signal communications, and the road net to surrounding territory. Wherever possible, a team was located near a division or a brigade headquarters of both the Indonesians and the Dutch.

Functions of the Military Observer Teams

The functions of the observer teams can best be illustrated by discussing the duties and characteristics required of observers, as gleaned from experience.

Observation.—It was the duty of the observers actually to see whether the provisions of the Security Council's resolutions, as channeled through the UNCI, were put into effect, and to report any violations thereof. Upon them was placed the burden of verifying real and alleged incidents and evidences of bad faith. It was mandatory that their investigations be thoroughly unbiased, analytical, and objective. Their observations had to cover information concerning a wide range of subjects including the order of battle, communications systems, fortifications, terrain, health conditions, and standard of living. Their movements, therefore, had to be entirely free and unhampered.

Whenever violations were discovered, they were brought to the attention of the responsible belligerent with the expectation that they would be rectified. Actually, observers had no power of enforcement, but had to rely upon their ability to settle differences and disputes by direct approach to local authorities and commanders.

An observer had to walk a tightrope of impartiality. His usefulness to the commission ceased whenever personal feelings and relationships were permitted to influence the reporting of facts. Good contacts were a vital necessity. In turn, contacts depended upon the building of friendships and close personal relations. It was extremely difficult to prevent such close associations from tempering observation and reporting.

The problem of maintaining impartiality also was important from the point of view of building and retaining the confidence of the parties to the dispute, who were always on the alert for indications

of favoritism. The benefit of a constantly changing multination observation team is evident. This observer found from experience that the efficiency of some teams was adversely affected by the retention of observers for extended periods of time in the same area.

Advisory.—Military observers were advisers only and did not determine military policy. However, it must be realized that most of the important military decisions reached by the commission in conjunction with the belligerents incorporated the observers' advice which was invaluable to the accomplishment of the mission.

The writing of the cease-fire articles and the orders setting up the whole procedure for the segregation of the opposing forces, the establishment of zones of influence, and areas of patrolling were the work of the military advisers. Similarly, after the transfer of sovereignty, the observers contributed ideas to the commission for the physical "handing over" of territory to the Indonesians and for the concentration of Netherlands troops prior to evacuation.

Mediation.—Since a transfer of sovereignty involved a change of control over an area, details for such a "hand over" had to be worked out in the field, usually with the assistance of a neutral group. In this case, joint committees were established in each team area consisting of the rival local military and political leaders, with the team co-ordinator presiding as a chairman without vote. It was his function to suggest compromises so as to reconcile conflicting viewpoints on problems involving transfers of personnel, weapons, and equipment in addition to territory. Without the assuasive influence of the observers, in a potentially explosive atmosphere, it was likely that agreements reached at the policy level would have been dissipated by endless haggling over details in the field.

The ability of the observers to allay long standing fears and mutual distrust, and to mesh opposing points of view into workable solutions, was one of their most important contributions.

Liaison.—Another duty consisted of liaison activities. Once the contending parties had agreed, in principle, with the commission to cease hostilities, conferences to settle details had to be opened between rival leaders in the field, whether they were division, brigade, or company commanders, so that fighting actually would stop when the order was issued.

This function is important in areas where communications are inadequate and the chain of command is weak. The former nearly always will be true wherever an observer group operates. The latter will be the case whenever one of the units involved is a guerrilla force. Opposing commanders, who had been waging war against each other, initially were somewhat hesitant about making direct contact. Negotiations for such meetings were made through the observers who again demonstrated that they had the confidence of both sides.

Escort.—This function achieved actual contact between both government officials and opposing unit commanders of all levels. It was a necessary duty especially since the parties had been at war for a sustained period and there had been a record of broken agreements. Naturally, both sides were somewhat wary about proceeding into opposing territories to initiate discussions without an escort by a neutral group. In Indonesia, it was quite common to assign observers to accompany distinguished leaders on important missions during the conferences for a cease fire.

Incidental Functions of the Military Observer Teams

Prevent bloodshed.—There were many cases on record where the mere presence of observers prevented irresponsible ele-

ments from creating situations that might have led to shooting incidents. The presence of observers made violations a matter of official record which could be produced at the conference table as evidence of bad faith.

Increase public morale.—In a similar manner, the presence of an observer team tended to allay the fears of the non-Indonesians as to their safety. During the withdrawal of Netherlands troops to staging areas in Indonesia, observer teams sometimes remained in the evacuated areas after the completion of their primary mission until those inhabitants gained confidence in the discipline of the Indonesian troops who were assuming control. In that way, movements of sections of the population were prevented.

Selection of Observers

General Qualifications

Any officer who has common sense and initiative, who is conscientious and has a sense of responsibility, who exhibits pride in his uniform, and who is in good physical condition, fits the basic specifications for a military observer. Physical fitness is included, because most of the areas where observers will be operating generally have poor living conditions.

It must be admitted, however, that there were a few officers in this observer group who did not fulfill even the minimum requirements. Usually, prompt action was taken to remedy the situation. In those cases where the deficiency was not corrected, the responsibility rested either on the commanding officer concerned or on a nation's failure to provide for an adequate inspection system.

An efficient officer group anywhere depends initially on proper selection. However, an assignment officer perusing qualification cards and efficiency reports cannot foresee how officers will react when placed more or less on their own in one of these outposts of the world. There must be closer supervision and more frequent, unexpected, and thorough inspections to correct deficiencies that are beyond the control of the assigner.

No matter what their primary duties were, observers were representatives of their country. They were on daily display before the personnel of many nations. Their personal and professional conduct was watched constantly, examined, and weighed not only by officialdom, but by the populace with whom they were in daily contact. The result was pinpointed on the nation that the observer represented.

In an era when the people of the world are being torn between conflicting political ideologies, it is imperative that all oversea missions be maintained at the highest possible level of efficiency and conduct.

Sociability

Since an observer secures information not only through observation but also from personal contacts, it is extremely important that he have the ability to make friends quickly. He should be a ready conversationalist and be able to mingle easily with people of all social strata. Professionally, an observer is in daily consultation with personnel of diverse temperaments who entertain varying opinions and prejudices. Decisions must be reached that reconcile divergent views and ideas without causing resentment.

Language

The ability to speak or understand the language of at least one of the parties to the dispute should be required, since interpreters seldom are available to observers in the field. A knowledge of languages often gives an observer access to information that otherwise might be denied him.

Branch of Service

The branch of service of the observer should depend on the situation. In Indonesia, where there was practically no sea or air action, a wise selection would have

been ground arms officers, preferably infantry, artillery, or armor in that order. It was considered that the professional skills of the air force and navy personnel detailed to the group were wasted.

Rank

For all officers except the senior observer, any rank above that of lieutenant should be acceptable. The junior officers are excluded solely on the grounds of inexperience. The senior observers of the participating nations should be of equal grade, either colonels or general officers, depending on the size of the mission.

Signal Communications

Urgent messages between the observers in the field and the headquarters were transmitted by radio in the clear through the Netherlands Army communications system. This was the fastest means available since the commercial telephone and telegraph system was not dependable at that time.

The lack of a code was an obvious deficiency that should have been remedied.

Team reports and other secret material had to be forwarded by courier or registered mail.

Logistical Support

The logistical support of the American unit was the responsibility of the State Department. For the observer group as a whole, the United Nations made provisions for the essential elements of messing, housing, transportation, and incidental office supplies.

United Nations jeeps, painted white, flying a United Nations flag were used by the observers in the field for their official duties. Travel between stations and the headquarters was performed primarily on commercial aircraft. A United States Air Force plane was attached to facilitate the work of the commission.

Evacuation of the American personnel in case of emergency was the responsibility of the United States Air Force based in the Philippine Islands. No general plan existed for the withdrawal of the group as a whole under emergency conditions.

Conclusions

United Nations military observers rightfully can take a full share of credit for the successful conclusion of the Indonesian problem. Hostilities have ceased and a new nation has risen under their observation.

The Indonesian experience is only one example of a dispute between countries requiring the presence of an impartial investigating body. As long as the United Nations continues to function as a force in the pacific settlement of international controversies, observers, civilian or military, will be required to furnish information and to verify the fulfillment of United Nations recommendations in all areas of the world where disputes are likely to exist.

We know that communism respects power alone, and if the free world is to enjoy peace, the free world must be strong.

General J. Lawton Collins

Armor in Retrograde Movement

Lieutenant Colonel Thomas O. Rooney, *Armor*
Instructor, Command and General Staff College

The Role of Armor

MUCH has been said about the employment of armored units. Usually such statements criticize the misapplication of the fundamentals of tank employment. Great stress is placed upon the differences between armored and infantry units.

There is considerable truth in many of these criticisms. There also is a tendency toward mysticism, to make armor a strange and perplexing monster to be handled with kid gloves.

An armored unit has only one real distinguishing characteristic—controlled mobile fire power.

Armored units possess tremendous direct fire power. That fire power is completely mobile; each weapon, individual or crew served, has its place in a vehicle. An extensive radio communications system adequately co-ordinates and controls this moving fire power.

Considering this characteristic, we can then ask: "What are suitable missions for armored units?" The answer is simple: "Any mission."

An armored division, for instance, can defend a sector, conduct an exploitation or pursuit, attack a fortified position, reconnoiter in force, protect lines of communications, perform separate task force operations, execute covering force operations, mop up bypassed enemy, and constitute the counterattacking force of the reserve. In short, an armored division may be used for any mission.

In determining a mission for armor, it is not a question of can the armor do it, but rather, is this mission the best one for armor in this situation? Does the mission take the greatest advantage of the one outstanding characteristic of armor, controlled mobile fire power? The answer to the last question is the key factor in determining whether or not to give it the mission.

One word of caution—armor is not a synonym for tanks. Armor is tanks, "married up" with infantry and supported by artillery and engineers. Armor is a unit or force such as an armored division.

A Simple Example

The enemy has organized a defense area and the decision is made to envelop this enemy position. Shall the infantry or armor pin the enemy down in position while the other force envelops? The armored unit is organized and has the fire power to attack and hold the enemy in position. It is a good mission for armor. But is it the best mission in this situation? Has the controlled mobile fire power been employed to the maximum? The best plan, of course, is to establish a base of fire with the infantry and envelop with the armor to place the controlled mobile fire power where it will hurt the enemy the most. Here, armor's mobility pays off.

Another Example

The enemy's main battle position must be penetrated to reach a critical communi-

cations center some 30 miles ahead. Can armor be used to penetrate the enemy line? Certainly! Here is a good mission for an armored division. The division can mass its four battalions of infantry, reinforced with tanks and supported by artillery and engineers, to assault the position as any infantry unit would conduct such an operation. Once the armor has penetrated the line, fresh infantry units could be passed through the ruptured position to exploit the initial success and race to the objective 30 miles away. But again, have we utilized the controlled mobile fire power of armor? It is a better use of the tools at hand to penetrate with the infantry and exploit with armor, with its inherent controlled mobile fire power.

It is not a question of can the armor penetrate, but can the infantry exploit as well as armor? The tools of war must be used to maximum efficiency to achieve success. Again, the key is mobility, quickly placing maximum fire power on the objective.

A More Complex Example

The enemy's main battle position must be penetrated to reach a critical communications center some 30 miles ahead. The infantry units, available to the corps commander, all have been committed for several days. The infantry is deployed on an extensive front. An armored division has been held back prepared to exploit the success of any of the infantry divisions. Can the armor be used to penetrate the enemy line? Yes! Not only is the armored division capable of a penetration, but, in this situation, it is the only unit available. The commander has little choice. An infantry unit could be replaced in the line to become the force making the main effort. However, it would have to be replaced by the armored division and nothing is gained. In fact, an advantage is lost if the infantry is exhausted and no mobile forces are available to exploit the success of the penetration.

The best employment of the controlled mobile fire power of the armored division, in this situation, is to give the armored division the mission of penetrating the enemy's position at its softest spot.

The armored division can form a combat command (CCA) with three infantry battalions, one heavy tank battalion, one medium tank battalion, supported by four artillery battalions, and the engineer battalion. This is a strong force—stronger than the average regimental combat team —and is adequate to penetrate on a narrow front.

An exploitation force also is available within the armored division. Another combat command (CCB) can be formed with two medium tank battalions, one battalion of infantry, the reconnaissance battalion, one company of engineers, and two battalions of artillery (picked up during the passage through the penetrating command—CCA). This is a strong exploitation force that has not been committed previously. It is fresh, and its strength has not been dissipated in the penetration. This exploiting command actually is the reserve until such time as the penetrating command has effected a rupture of the position. Then the exploiting command is committed and the Reserve Command receives those units which are relatively fresh from the penetrating command. The

The armored division, with its tactical mobility, heavy fire power, excellent communications, and flexibility of organization, is pre-eminently suited for the conduct of delaying operations on a wide front

infantry units of the corps then can organize to follow and support the armored division when the rupture is assured.

The armored division, in this situation, both penetrates and exploits. It is not ideal to have the same unit penetrate and exploit, but, here, the best possible use has been made of the controlled mobile fire power of armor.

Another factor exists if an armored cavalry regiment is available to the corps commander. If the enemy does not have the probability of launching a strong attack against us, the armored cavalry regiment could replace an infantry division in the line. Where the infantry divisions have been committed for several days and time is an important factor, the penetration still should be executed by the armored division. By replacing an infantry division with the armored cavalry regiment we expedite the organization of the relieved infantry unit which can follow and support the armored division. Even so, serious consideration as to the best use of the controlled mobile fire power of the armored cavalry regiment is important.

Summary

In short, armor can and should be used in all types of combat. Armor placed in reserve is not a good mission for armor, unless there is a definite plan to commit it under conditions which the rest of the command is trying to create.

A proper mission is one where the inherent characteristic of armor—controlled mobile fire power—is employed to the utmost.

Armor in Retrograde Movement

The tank generally is considered an offensive weapon; the armored unit, an offensive unit. This does not imply that armored units are not to be employed in defensive operations. In the event of a future war, the American forces in contact with the enemy can expect to be hit by a well-planned, strongly supported, and well-screened attack by vastly superior forces, numerically. Time will be needed to move the requisite forces to the area of combat and to build up our military might in sufficient strength to stop the enemy, assume the offensive, and, ultimately, defeat him. Thus, we can expect our initial operations on the ground to be defensive.

One form of defensive warfare is the retrograde movement. Simply, a retrograde movement is a movement to the rear, away from the enemy. This movement may be voluntary or involuntary. Such movement may be classified as a withdrawal, a retirement, or a delaying action.

In a withdrawal, contact is broken with the enemy except for security and reconnaissance forces.

A retirement is an orderly withdrawal of troops according to their own plan and without pressure by the enemy.

When space is to be traded for time, a delaying action is used in which the maximum punishment is inflicted on the enemy without becoming decisively involved in combat.

Delaying Action

In the early stages of combat, such as we witnessed in Korea, it becomes necessary to trade space for time to permit the movement of troops and supplies, in sufficient quantity, to the battle area to stop the enemy. It is essential that the enemy be prevented from reaching a final, decisive objective, and that the maximum casualties be inflicted on the enemy. At the same time, decisive combat must be avoided to prevent the loss of our existing military strength. The units, initially engaged, should be reinforced, not replaced. A successful trading of space for time brings about a gradual increase in the combat power of our forces, while the strength of the enemy is dissipated to the point where he can be stopped, the initia-

tive taken away from him, and we can begin our offensive operations to annihilate him.

Of necessity, the conduct of a delaying action indicates violent combat. As space is given up, the enemy must pay heavily in troops and matériel; each foot of ground must cost the enemy more than he can afford. And yet, this must be accomplished against an enemy who has all the advantages of surprise, a battleground of his choosing, and superior strength.

To sell space dearly and to inflict maximum casualties, the delaying force must have the greatest amount of fire power available. There must be long-range, heavy artillery fire; long-range, direct fire by tank weapons; a considerable amount of automatic fire; and a tremendous volume of close-in fire. This requisite of fire power is a characteristic of an armored division, exceeding that of any other type division.

To be able to move rapidly, and to avoid decisive combat after maximum casualties have been inflicted on the enemy at any one location, requires great mobility. An armored division, completely mounted in vehicles for both weapons and personnel, provides ground mobility in its highest degree among our forces.

A delaying action envisions more than just setting up a temporary defense, to be hastily abandoned as the enemy approaches the area. To inflict maximum casualties on the enemy, delaying and defensive positions are established behind a series of natural and artificial obstacles, from which we take the enemy under long-range artillery and tank fire, force him to time-consuming deployments and maneuvers, and extract a heavy toll of casualties as he assaults our positions.

Just before the enemy overruns our positions and causes serious casualties to our forces, the defenders pull out of the positions, protected by available terrain and their armor-covered vehicles, and thus avoid decisive action.

Whenever the enemy, because of haste and the desire to close and pin our forces down, overextends himself or commits forces that are too weak, an excellent opportunity exists to pull him into a trap and eliminate a portion of his forces. We must be alert for the opportunity to counterattack or attack when the situation is such that, by surprise and fire power, we can inflict great damage, and yet be able to defend or extricate ourselves before the enemy has time to react effectively and employ superior forces. This requires a high degree of mobility, a high volume of fire of all calibers, and a most efficient system of control and communications.

In fact, this type of action employs the outstanding characteristic of the armored division to a high degree. Armor is ideally organized, equipped, and armed to execute retrograde movements.

An Example of Armor in Retrograde Movement

To illustrate the adaptability of armor to delaying tactics in a retrograde movement, let us consider a situation where an armored division is employed in such an action.

General Situation

The I Corps is a part of a combined occupation force. On 30 April, the major elements of the corps—the 20th, 55th, and 72d Infantry Divisions and the 23d Armored Division—were disposed, in concentration areas, as indicated in Figure 1. Early on the morning of 1 May, strong enemy forces overran the weak United States border outposts along the Pink River and the Elk Forest, driving in a westerly direction, with the apparent mission of seizing airports and the political complex of Dodge. Large numbers of enemy tactical aircraft are supporting the advancing columns and are ranging along

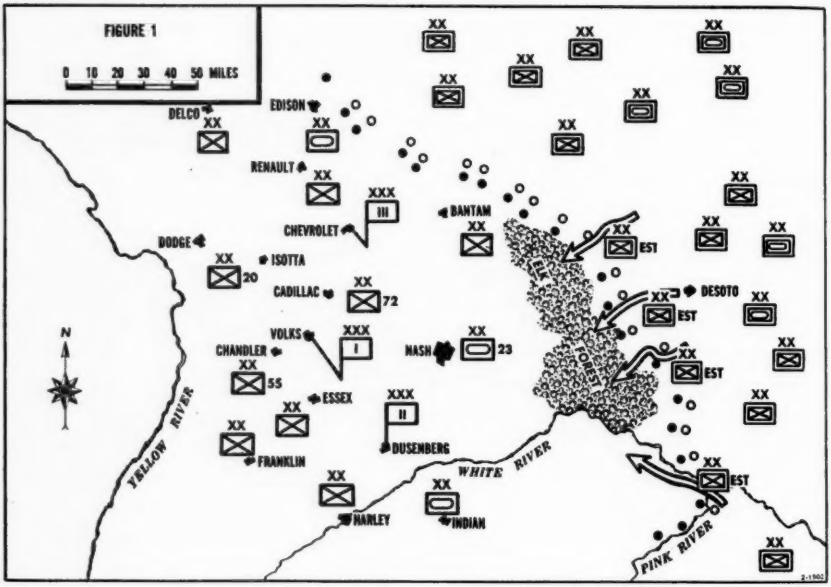
the axis Desoto—Nash—Dodge. The enemy has general air superiority.

Special Situation

As a result of high-echelon intelligence indicating the likelihood of a major enemy offensive in one of several directions, the corps commander had prepared a series of tentative plans to meet each threat. Units previously had been concentrated by divisions in areas which will permit them to best carry out any one of these plans. (See Figure 2.)

By 010400 May, the occupation force commander decided to delay the enemy advance east of the Yellow River to gain time for a build-up of troops and matériel and to establish a defensive position adequate to stop the enemy. The corps commander was instructed to defend, initially, on the line Reo—Olds—Ford, and to hold the enemy east of that line until 082100 May.

Three infantry divisions and one armored division are assigned to the I Corps, in addition to the normal corps troops which include an armored cavalry regiment and the corps tank group. The armored cavalry regiment, assigned to the corps, is the unit which was manning the border outposts when the occupied territory was invaded. The armored division is located in the vicinity of Nash.



The enemy situation is as shown in Figure 2.

Terrain and Weather

The weather forecast for the next 6 days indicates a period of clear skies and warm to hot weather. The moon will be full on 5 May.

The terrain between the enemy columns and the Reo—Olds—Ford line consists of a series of gently rolling, heavily wooded cross compartments. The critical terrain features and the best avenues of approach

available to the enemy also are indicated in Figure 2.

Special Situation Continued

The enemy columns approaching Kaiser have been able to advance about 5 miles during the past hour against the armored cavalry resistance. If the present rate of advance is maintained by the enemy, he will be able to reach Nash about 011700 May, and can close a total of four infantry divisions and two armored divisions in Nash by dark today. The enemy also will be able to reach the Reo—Olds—Ford line by 0600 tomorrow, requiring the I Corps to hold in that position for 7 days in order to accomplish its mission.

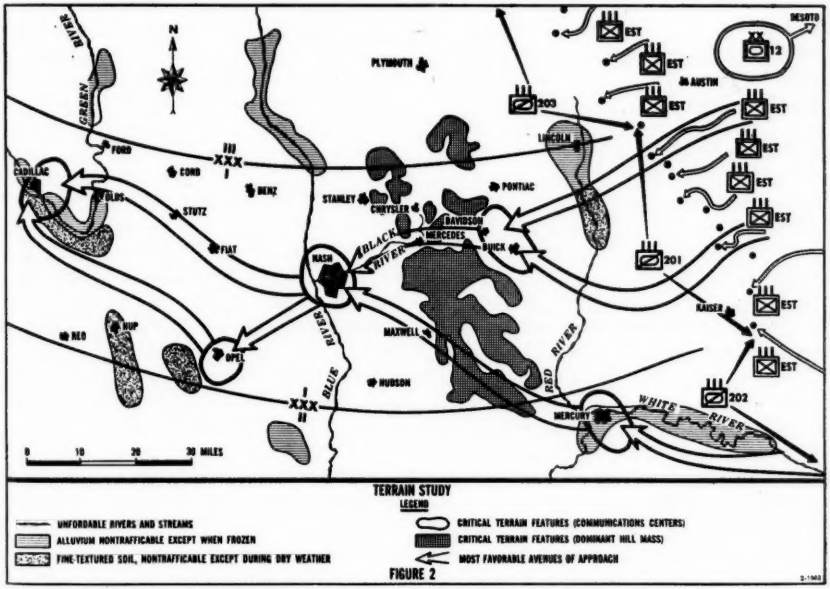


FIGURE 2

The Factors

It is doubtful if the I Corps can defend on the Reo—Olds—Ford line for 7 days against superior forces. Therefore, the advance of the enemy must be slowed to a rate where time is made available for the preparation of defensive positions in the vicinity of that line. The strength of the position is such that it is estimated that it could be held for 4 days after the leading elements of the enemy reach it.

Three infantry divisions and one armored division are available for the defense of the Reo—Olds—Ford line for 4 days. Given 3 days to prepare the position, a fairly strong defensive area can be organized with three infantry divisions on the line, and an armored division in reserve prepared to counterattack any serious penetration of the line by the enemy.

If an infantry division were given the mission to delay the enemy, some other unit would have to prepare the defensive position for that unit, or the armored division would have to be committed to a position defense within a sector.

The armored division—because of its battlefield mobility; long-range, armor-protected fire power; extensive communications system; and flexibility of organi-

zation—is suited particularly well for a covering force mission to delay the advance of the enemy and provide time for the organization of the Reo—Olds—Ford defensive positions. However, like an infantry division, it should be reinforced suitably with engineers and medium artillery. When assigned an extensive zone and opposing an enemy strong in tanks, the armored division also should be reinforced with additional tanks from the corps tank group.

The advantageous characteristics of an armored division employed as a covering force are coupled with certain disadvantages. The heavy equipment of the division is sensitive to terrain. The enemy, with air superiority, can interfere seriously with the disengagement and withdrawal of elements of the armored division, principally by destroying critical bridges and by attacking in defiles. Armor also is sensitive to darkness and other conditions of low visibility. It should be noted, however, that enemy armor equally is sensitive to terrain and light conditions.

If the armored division is used to delay the enemy, the infantry can prepare the defensive positions they will occupy. The armored division, as it is driven back by the enemy, can pass through the infantry and become the corps reserve for use as a strong counterattacking force.

The Decision

In this situation, the armored division has the characteristics which indicate its best mission is to provide the covering force for the corps to delay the enemy for 4 days. Considering all factors, the corps should be able to delay the enemy's arrival at the Reo—Olds—Ford position for 4 days and to hold in that position for another 4 days. Serious enemy casualties should be inflicted during the covering force phase, the development of the corps position by the enemy, and the final assault by the enemy before the corps withdraws on the eighth night. This would accomplish the corps mission satisfactorily and avoid the destruction of any sizable corps force.

The corps commander decides to give the armored division the mission to hold the enemy east of a line through Hup—Stutz—Cord until 042100 May.

Attachments

Long-range artillery is needed by a covering force to interdict enemy movements and to force an early deployment of his forces. Light artillery is required to provide additional close support within the wide zone. Antiaircraft artillery is necessary for the protection of the artillery and of essential areas in the division zone such as critical bridges needed for the armored disengagements. Therefore, two 155-mm howitzer battalions, two armored field artillery battalions (105-mm howitzer), and one antiaircraft artillery automatic weapons battalion, self-propelled, are attached.

Extensive use can be made, in this situation, of demolitions, artificial obstacles, and mine fields to harass, channelize, and delay the enemy. In addition, the enemy air arm may be successful in destroying bridges on the armor's avenues of withdrawal. One engineer combat battalion and one engineer treadway bridge company are attached.

At present, the armored cavalry regiment is operating under corps control and is offering all possible resistance to the enemy's advance, within the zone of the armored division. For unity of command, the armored cavalry regiment is attached to the armored division. This regiment can be used later to protect the division flanks against surprise enemy envelopments.

At present, the enemy can bring two armored divisions to the vicinity of Nash by darkness on 2 May. To provide additional antitank weapons and long-range, direct-fire weapons for adequate coverage

of the extensive zone, the corps tank group (three heavy tank battalions) is attached.

A chemical mortar battalion is attached to provide the division commander with an excellent weapon to cover obstacles and road blocks and also for close-in high explosive and white phosphorus supporting fires.

All of these units are attached, since the armored division will be operating at too great a distance from the corps defensive position for them to remain under corps control. The fundamentals of decentralized operations further dictate the attachment of these units to give the armored division commander the tools with which to accomplish his mission.

The Division Plan

The division commander notes that he must hold the enemy east of the line Hup—Stutz—Cord for 4 days or until 042100 May. Much of the zone is covered with woods, although there are many open areas. There is a large woods just east of Nash which constitutes an excellent obstacle. In addition, there is a low ridge system extending roughly north and south and lying about 22 miles east of Nash. An area containing many small lakes lies 18 miles northwest of Nash.

The division commander estimates that the enemy is capable of reaching the line Mercury—Buick—Plymouth by 010900, the line Maxwell—Chrysler by 011300, and the line Hudson—Stanley by 011530.

The most desirable initial delaying position is along the eastern edge of the ridge system east of Nash. However, it would be a race between the two forces to reach this line. The division commander decides to make his initial delaying position in the vicinity of the line Maxwell—Chrysler. This line would provide about 4 hours for his units to organize the position, and still allow sufficient time and space to delay the enemy forward of the Hup—Stutz—Cord line for 4 days.

The division commander is faced with the problem of trading space for time. He has to consider how much space can be given up during each arbitrary period. Considering his mission, the natural terrain obstacles in the zone, the relative strength and mobility of the two forces, and the enemy's air superiority which makes daylight movements hazardous, he decides to organize four positions and to delay between each one for 1 day, executing his withdrawals each night. He selects three additional lines: the line through Hudson—Stanley, east of the critical city of Nash, to be held until 012100; the line along the Blue River to be defended until 022100; and the line through Opel—Fiat—Benz which will be held until 032100. However, he will *not* arbitrarily relinquish space unless forced to do so by the enemy.

Task Organization

The organization of forces for combat is the next problem.

The width of the zone is approximately 45 miles. There are five major combat elements available to the division commander: Combat Command A (CCA), Combat Command B (CCB), and the Reserve Command, all organic to the armored division; the armored cavalry regiment, and the corps tank group. The armored cavalry regiment is engaged with the enemy and is not available until it has withdrawn through the initial delaying position of the division. In view of the extreme width of the zone, the division commander decides to employ CCA in a northern zone, CCB in a center zone, the Reserve Command in a southern zone, and the tank group as the division reserve.

The combat commands and the reserve command will contain the bulk of the armored infantry battalions to permit them to screen the front efficiently and to organize strong defense areas on the ground. CCB is given two battalions of infantry

since it has Nash in its zone and a principal avenue of approach. CCA and the Reserve Command have one battalion of infantry each.

Each of the commands on the line is given a medium tank battalion and a battalion of heavy tanks (the division heavy tank battalion and two battalions from the tank group) to provide them with long-range fire power and a mobile reserve.

Since the width of the zone precludes centralized control of the light artillery, it is attached to the commands. CCA and CCB each have a principal avenue of approach in their zones and CCB also has the city of Nash. Therefore, two battalions of armored field artillery are attached to each combat command. One battalion is attached to the Reserve Command. The medium artillery is kept under division control to permit the more effective massing of fires:

1. On either of the principal avenues of approach.
2. To delay and disorganize the enemy.
3. Forward of the delaying positions during the withdrawal of the major combat elements.

Reconnaissance, engineer, and antiaircraft artillery units also are attached to each of the forward commands because the width of the zone precludes the employment of these units under centralized control.

All aircraft available to the I Corps will be used throughout this operation, particularly for visual reconnaissance.

The Execution

The armored division, by the extensive use of its fire power, mobility, natural and artificial obstacles, and demolitions, has been able to bring the enemy under fire and has forced him to deploy and maneuver before advancing through a series of defended obstacles, road blocks, and prepared positions before reaching the organized delaying position for each day. The enemy has been forced into time-consuming and casualty-sustaining operations without our forces being depleted or committed to decisive battle.

The division successfully delayed the enemy during the morning of 3 May along the Blue River line. Ultimately, however, the superiority of the enemy permitted him to establish small bridgeheads across the river. The division continued to delay during the afternoon of 3 May between the Blue River line and the Opel—Fiat—Benz line. By 031900 May, CCB had been forced back in its zone until the flanks of CCA and the Reserve Command were in danger of being enveloped. According to plan, and on division order, the main elements of the division withdrew, during the night of 3-4 May, under cover of small delaying forces to positions in the line Opel—Fiat—Benz.

By noon, 4 May, the main enemy forces had driven the forward elements of the division back and had uncovered the entire breadth of our position. At 1400, the enemy launched a determined attack along the axis Fiat—Olds. A counterattack by the reserve of CCA was beaten off successfully by the enemy who was able to hold the gains. (See Figure 3.)

The enemy still must be held east of the Hup—Stutz—Cord line until 2100. The division commander's plan envisions that the armored division will withdraw behind the corps defensive position prior to daylight on 5 May, and revert to corps reserve.

During this day, CCA has suffered severe losses. It is doubtful if CCA can delay the enemy in its zone long enough to maintain the time schedule; in fact, it will have considerable difficulty in withdrawing at all. In addition, the flank of CCB is exposed. Air reconnaissance reports that the enemy is moving heavy reinforcements along this avenue of advance and is capable of concentrating two divisions on our front by dark. Indications are that

the enemy will launch another attack this afternoon.

CCB is holding its own, as the enemy has not made a strong attack in its zone.

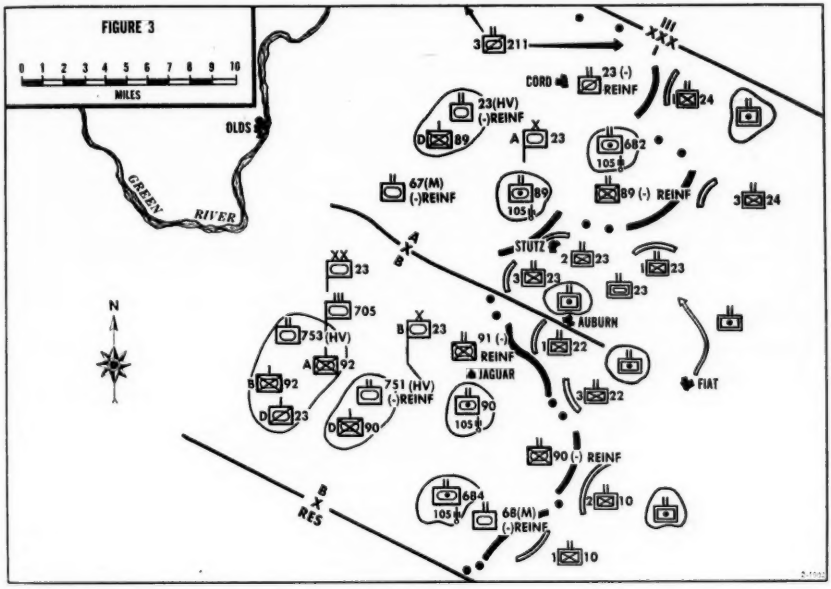
Reinforcing CCA with the tank group will have no effect on the enemy's preparation for the attack, and probably it will be in sufficient strength to overrun both CCA and the tank group. If this occurs, the enemy will be able to reach the Hup—Stutz—Cord line before darkness tonight.

The commanding general then decides that he must gain time by disorganizing the enemy to such an extent that the enemy cannot attack this afternoon in any sizable force. A counterattack against the south (left) flank of the enemy salient in front of CCA could disorganize and delay the impending enemy attack.

There is 4½ hours of daylight remaining, sufficient time for a counterattack if the tank group (minus two heavy tank battalions) is so employed. However, a deep objective is not desired. If the axis of the attack is too deep, the tank group may become so engaged with the enemy that it cannot extricate itself.

The commanding general decides to launch an attack immediately with the 705th Task Force composed of the 705th Tank Group (minus two battalions) reinforced with two armored infantry companies and artillery support along the axis Juguar—Auburn—Stutz, rejoining our forces in the vicinity of Stutz, to delay the enemy's attack.

The sudden attack by tanks, with the tremendous fire support of all available weapons, was sufficient to permit the tank group to complete its mission, destroying considerable amounts of enemy troops and equipment. The tank group was successful and rejoined our forces at Stutz. While the tank group suffered casualties, the aggressiveness of the attack and its unexpectedness caused far greater damage to the enemy. The enemy was forced



to reform and organize another attack, which he was unable to do prior to darkness.

This attack against the bulge of the enemy's penetration permitted the armored division to hold its Hup—Stutz—Cord line until 042100 May, at which time the planned withdrawal began.

While the armored division, in 4 days of violent combat, suffered losses, those losses, as a result of its controlled mobile fire power, did not destroy the effectiveness of the armored division for further combat. The enemy, on the other hand, constantly being brought under fire, forced to deploy, maneuver, and assault defensive positions, suffered losses to such an extent that one of the earlier identified enemy divisions was not located in the zone on the fourth day. It had been replaced by a fresh division. Of great importance, the armored units provided three additional days for the preparation of the corps defensive position, which had to withstand the onslaught of the enemy for an estimated 4 days. This had been accomplished by using the units that are the corps reserve and are now available again for that mission.

Conclusions

The tactical mobility, heavy fire power, abundant means of communications, and flexibility of the organization of the armored division permit it to deploy on a broader front and a deeper zone, when used as a covering force in a delaying action, than any other type of division.

The armored division, with its mobility and fire power, can inflict tremendous casualties on the enemy and successfully trade space for time.

The armored division, completely mobile, can achieve surprise and execute violent, aggressive attacks against the enemy, while the command as a whole is withdrawing

Armored units are ideal for employment in retrograde movements.

From time to time there have been statements to the effect that our tanks are no match for the Russians'. Results obtained in Korea prove otherwise. Our *Patton* tanks in action there have been more than a match for the Russian mediums. Even our old *M4 Sherman* tanks held their own with the tanks and self-propelled guns employed by the enemy thus far.

General J. Lawton Collins

MILITARY NOTES AROUND THE WORLD

UNITED STATES

Communications Equipment

The Army Signal Corps in Japan has rebuilt and put to use nearly 80 million dollars worth of badly needed communications equipment abandoned on Pacific islands after the end of World War II.—News release.

Concrete Drydocks

The Navy is studying designs for improved, more economical, floating drydocks constructed of concrete. They would cost less to build than steel counterparts. Designs now under study would use only reinforcing grade steel. They would contain 75 percent less steel than the all-steel facilities. Moreover, maintenance costs for concrete units are lower and damage to hulls is easier to repair.

Some 13 concrete docks were built during the last war, but, because they were heavier than steel docks of equal dimensions, their lifting ability was curtailed. They also were more difficult to move than steel docks of the same size. New developments, however, have revived interest in both monolithic and sectional concrete auxiliary repair docks. If plans are successful, Navy civil engineers would build these units in sizes up to 15,000 ton lifting capacity.—*Army Navy Air Force Register.*

Flare Tests

Tests are being conducted at The Artillery School, Fort Sill, Oklahoma, to determine the suitability of dropping flares from light airplanes organically assigned to field artillery battalions. The tests also are being made to determine the desirability of using the Navy's *Mk IV* flare to illuminate attack areas and provide light for the adjustment of artillery fire.—*Combat Forces Journal.*

Pacific Airlift

United Nations military and civil aircraft of the Pacific Airlift operated by the Military Air Transport Service airlifted 23,000 tons of critical matériel and mail and more than 68,000 high-priority personnel to the Far East in 1951.—News release.

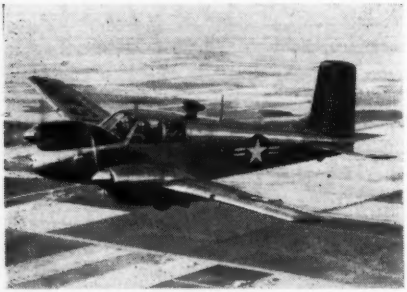
Trucks and Trailers

There are more than 8 million motor trucks and trailers in the United States; more than half the trucks and trailers in the world. These vehicles provide direct employment for more than 5 million workers, pay $1,161,000,000 a year in special highway taxes, use 568 million quarts of oil a year, 8½ billion gallons of gasoline a year, and haul 90 billion ton-miles a year.—*The New York Times.*

'Flying Staff Car'

Army Field Forces recently received four twin-engine *YL-23s*, the largest fixed-wing airplane operated by the Army.

Called by some the "Flying Staff Car," the planes will be used for transporting general and staff officers of army and corps



The Army's new *YL-23* "Flying Staff Car."

headquarters. The six-place *YL-23*, in addition to standard commercial instrumentation and equipment, is furnished with special auto-pilot and radio installations. It has a cruising speed of 190 miles an hour and a range of 1,155 miles.—News release.

Fire-Fighting Aid

Ordinary air is the newest aid in controlling fires in oil tanks. This air is forced into the bottom of the tank and, rising to the surface, causes agitation of the contents which brings cold oil from lower layers to the surface to decrease vapors feeding combustion.

The ordinary foams used in fire-fighting do the rest of the job. The job is easy because there is no slop-over, frothing, and expansion of the hot oil layer at the top that there would be without the application of air and the agitation produced. In one test, a tank holding blazing crude oil was under control in 45 seconds and completely extinguished in 5 minutes by firemen applying foam at close range.—*Science News Letter.*

De-Icing System

The Navy has announced the development of a de-icing system for helicopter blades. The system is operated electrically and consists principally of wire embedded in special rubber running the length of the blades and covering about one-third of the surface.—News release.

Alloy Titanium and Zirconium

Two plentiful but now little used metals, titanium and zirconium, will mix in any proportion to form valuable alloys, the United States Bureau of Mines has discovered in recent investigations.

These light, corrosion-resistant metals can be used in many applications, particularly in alloyed form, and many uses are promised for them.

Titanium is the world's fourth most plentiful metal, but has been little used in metallic form in the past because of difficulties in separating it by a commercially economical process from the minerals in which it is formed.

Zirconium is not as plentiful as titanium, but it is more abundant than such common metals as copper, nickel, and lead. Its separation also is a problem. However, methods have been developed recently by which both titanium and zirconium may be economically obtained. Both promise to become important metals in everyday use.—*Science News Letter.*

Rubber Flight Deck

Use of a new, flexible rubber flight deck for aircraft carriers is now under study by the Navy. Although details are secret, it is known that the main object of the research is to provide a landing base on carriers which would permit aircraft to reduce much of their present weight by removal of the landing gear. Planes would be catapulted from the deck, and would land aboard the carrier by some undisclosed method.—*Army Navy Air Force Journal.*

Machine Tools

The Government recently announced plans to reclaim several million dollars worth of machine tools turned over to educational institutions as surplus property after World War II.

The program will be handled by the Federal Security Agency in co-operation with the National Production Authority and the Defense Department.—News release.

Defense Spending

The Department of Defense ordered 18 billion dollars worth of weapons, other equipment, food, clothing, and military construction during the last half of 1951.—News release.

Power From Atomic Breeder Heat

Small amounts of electric power have been produced from heat energy released in the operation of the experimental breeder reactor which was completed recently at the National Reactor Testing Station in Idaho. In a trial run, electrical power of more than 100 kilowatts was generated and used to operate the pumps and other reactor equipment and to provide light and electrical facilities for the building that houses it.

The heat energy generated was removed from the reactor by a liquid metal at a temperature high enough to generate steam to drive the turbine.—*Science News Letter.*

Scrap Drive

German and Japanese tanks captured during World War II are being melted down and forged into modern weapons as part of the Army's nation-wide scrap drive which already has rounded up more than 70,000 tons of ferrous metals. Moreover, Soviet-built tanks and other equipment knocked out or captured in Korea likely will be melted down and moulded into new pieces of equipment as the program of returning battlefield scrap to the United States gets into full swing.—News release.

Field Training

The Chief of the National Guard Bureau has announced that about 225,000 National Guardsmen from some 3,500 units will take part in annual field training this year.—News release.

Carrier Based Bomber

The Navy's new multiengine carrier based attack bomber—the *XA2J-1 Savage*—recently completed its first flight. Powered by two Allison *T-40* turboprop engines turning six-bladed counterrotating propellers, the new *Savage* has a top speed in excess of 400 miles an hour. Heavier

The Navy's new *XA2J-1* carrier based bomber.

than its predecessor, the *AJ-1 Savage* (MILITARY REVIEW, Mar 1951, p. 64), it also has greater tactical range. Like the first of the *Savages*, the *XA2J-1* is the heaviest of the Navy's carrier based planes, with a maximum take-off gross weight in excess of 26 tons. It has a crew of three, carries 20-mm armament, and is capable of carrying a bomb load of 10,000 pounds.—News release.

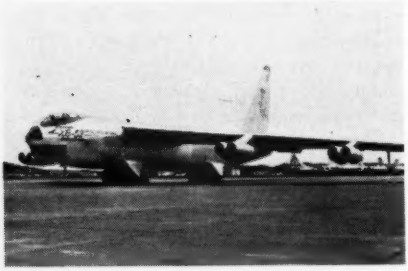
Ersatz Palm Oil

United States steelmakers may not have to depend on foreign sources for palm oil, an essential lubricant in the rolling of tin plate, as a result of a new substitute which has been developed. The new lubricant is produced entirely from domestic materials and is said to duplicate all the chemical characteristics of palm oil.—*The New York Times.*

Stratofortress Bomber

Taxi tests of the Air Force's new *XB-52 Stratofortress* have begun; the second stage of the ground-proving program for the eight-jet heavy bomber.

The taxi program will include tests on steering, braking, engine acceleration, and control surface action. At its conclusion, a second *Stratofortress*, now nearly completed, will be rolled out and the first *XB-52* will be returned to the factory for installation of equipment which was not available at the time of the initial rollout.



The Air Force's *XB-52 Stratofortress.*

While complete equipment is being installed in the *XB-52*, the second *Stratofortress* will undergo ground tests and then will be prepared for flight, thus becoming the first of the new model to fly. No announcement has been made as to the expected date of its maiden flight.

The second *Stratofortress* has been designated the *YB-52*. The Air Force uses the letter "Y" to denote that the airplane will act as a service test plane for the production models. Use of the "X" denotes an experimental model.—News release.

National Guard Commissions

A total of 2,233 enlisted men have been commissioned as second lieutenants in the National Guard during the past 18 months as a result of having successfully completed the Army extension course program.—News release.

Steel Production

Production of steel in the United States in 1951 topped all previous records by more than 8 million tons. Total output for the year was placed at 105,133,424 net tons of ingots and steel for castings, compared with the previous record in 1950 of 96,836,075 tons.—News release.

Rocket Ship

The Navy has awarded a contract for the first of a new line of rocket ships designed for close support of beachhead attacks. Rapid-fire rocket launchers will be the main armament of these ships, which will be constructed to operate in shallow water close to landing beaches. The mission of these vessels will be to saturate a landing area with high-explosive rockets.

The new vessels are an outgrowth of experience gained in World War II and Korea with rockets launched from small and medium-size landing craft.—News release.

Army Schools

The Army now is operating 104 elementary schools and 20 high schools in the European Command, Far East Command, Austria, and Trieste, and more than 17,000 dependents and members of the armed forces enrolled in them are receiving instruction from American teachers.—News release.

Robot Helmsman

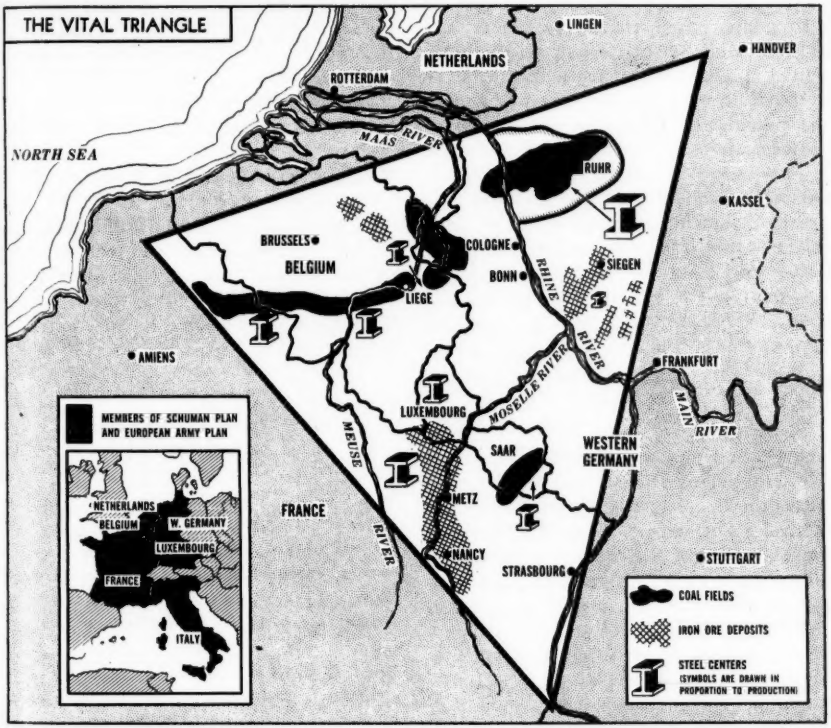
The Navy has announced plans for equipping the aircraft carrier *Oriskany* with a robot helmsman.

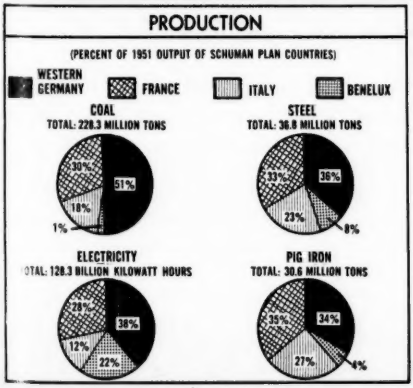
The automatic steering device, first to be installed on a carrier, is designed to help flattops dodge enemy torpedoes as well as aid in the launching and landing of jet planes.

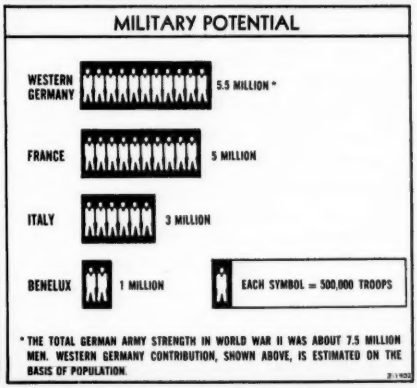
The new device is geared to anticipate steering moves. Previously computed evasive tactics are set and the automatic helmsman goes into action at a moment's notice.—News release.

WESTERN GERMANY

Three Reasons Why Western Germany Is Important to the Western Nations






MILITARY POTENTIAL
WESTERN GERMANY
5.5 MILLION *
FRANCE
5 MILLION
ITALY
3 MILLION
BENELUX
1 MILLION
EACH SYMBOL = 500,000 TROOPS
* THE TOTAL GERMAN ARMY STRENGTH IN WORLD WAR II WAS ABOUT 7.5 MILLION MEN. WESTERN GERMANY CONTRIBUTION, SHOWN ABOVE, IS ESTIMATED ON THE BASIS OF POPULATION.

AUSTRALIA

Science Survey

The Australian Government has set up a committee of experts to report on the use of Australian scientists and scientific facilities in defense preparations and in the event of war. The committee will survey the probable requirements and supply of various classes of scientists, and determine the best ways of using available scientific resources without undue disturbance to other important scientific work in Australia.—*Australian Weekly Review.*

Army Pilots

The Australian Army is planning to train its own pilots for reconnaissance, communications, and air medical evacuation missions.

These pilots will provide a pool from which the Army can man Royal Australian Air Force (RAAF) light aircraft units with its own pilots who know the Army's tactical requirements. This would relieve the RAAF from the necessity of taking pilots who are specially trained to fly high-performance aircraft away from such duties in order to meet the Army's particular requirements in light aircraft.

The new scheme will keep the Australian Army abreast of developments and practice in the United Kingdom and other Commonwealth armies.—News release.

New Trainer

An Australian-designed trainer—the *CA-22*—has been ordered for the Royal Australian Air Force (RAAF), and soon will go into full-scale production.

The new plane, which will replace the *Tiger Moth* as the RAAF's basic trainer, features side-by-side seating, and is completely equipped with radio and blind-flying equipment.

It has a span of 38 feet 9 inches, a length of 29 feet 4 inches, and a height of 8 feet 3 inches.—News release.

Explosives Plant

A fractional plant for the production of the high explosive RDX will be established in Australia at a cost of about 2½ million dollars. Initially, production will be on a small scale, but expansion of output will be possible if necessary.—News release.

Women for Australian Army

The Minister for the Army has announced that 3,000 women will be admitted to a new Citizen Military Force component of the Women's Royal Australian Army Corps (WRAAC), and 900 to a citizen branch of the Women's Royal Australian Army Nursing Corps.—News release.

Air Training Corps

The Air Training Corps, official cadet organization of the Royal Australian Air Force (RAAF), is to be increased by 1,800 personnel. This increase is the result of the large number of applications received for enlistment. During the last war, 30,000 cadets passed through its ranks and, of these, 12,000 served in the RAAF.—*Australian Weekly Review.*

Coal Output

Federal and state authorities expect an increased output of 1,300,000 tons of coal this year from the mines in New South Wales.—News release.

Stronger Air Force Planned

The Government has announced that it is planning to increase the strength of the permanent Royal Australian Air Force by about 4,000 personnel. Moreover, the Government has decided to put RAAF squadrons in Malaya and Korea on a war footing. A formal change from peace to war establishments previously had not been made, and units overseas had been maintained on a war footing only by transferring airmen from units based in Australia.—News release.

CEYLON

Japanese Aid

Japan has agreed to supply technicians and plant equipment to help develop Ceylon's textile industry.—News release.

BRAZIL

Nuclear Reactor

The Brazilian Government has announced that it plans to construct a pilot nuclear reactor in the inland mining state of Minas Gerais.—*The New York Times.*

Pipe Line

Work was completed recently on a pipe line which links the port of Santos with Sao Paulo City, 2,600 feet above sea level. It is expected that this line will handle about 25,000 barrels daily.

About 50 percent of the oil received by Brazil is consigned to the port of Santos. —*A Defesa Nacional,* Brazil.

NORTH ATLANTIC TREATY NATIONS

Standard Naval Terms

The Atlantic Pact countries have adopted standard naval terms to improve communications among their naval forces. —News release.

Jet Bases

A plan to equip Western European air bases for servicing the four types of jet fighters now used by the North Atlantic Treaty Organization (NATO) nations was disclosed recently by the United States Air Force. The program, which would enable jet fighters to fly from any NATO field, regardless of nationality, is an outgrowth of "Exercise Cirrus," which was conducted last September. The Air Force announcement said that much of "Exercise Cirrus" involved "redeployment of fighter squadrons so that outnumbered defending forces could counter attacking bombers by constantly shifting their weight to different fields."—News release.

NORWAY

Merchant Marine

The Norwegian merchant marine had an increase of 142 ships totaling 706,000 gross tons during 1951.—Norwegian Information Service.

UNION OF SOUTH AFRICA

Population Increase

According to revised figures of the last census, the population of South Africa is now set at 12,646,375, an increase of 1,228,026 during the past 5 years.—Union of South Africa Government Information Office.

MALAYA

Rubber Production

Malaya produced 603,880 tons of rubber in 1951 as compared with 692,585 tons in 1950. Generally unsettled conditions were blamed for the decline.—News release.

PERU

Loan Bill Signed

The President of Peru recently signed a bill authorizing him to contract loans totaling 60 million dollars from the International Bank for Reconstruction and Development and the United States Export-Import Bank. The loans will be used for a wide public works program, including irrigation, port improvement, and agricultural development.—News release.

BURMA

Colombo Plan

Burma has accepted Great Britain's invitation to join the Colombo Plan for Southeast Asian economic development.—News release.

COLOMBIA

Armed Forces

Recruiting and training programs are underway to increase the strength of the Colombian Navy and Air Force.—*The New York Times.*

JAPAN

Ship Salvage Survey

A joint survey will be made by Japan and Indonesia of sunken Japanese ships in Indonesian waters.—News release.

Exports Doubled

Japan's exports last year nearly doubled those of 1950. Japan's authorized exports for 1951 totaled $1,408,932,000, compared with $783,476,000 for 1950.—*The New York Times.*

MEXICO

Military Budget

The Mexican Ministry of National Defense during 1952 will get an increase of 19 percent over the funds allotted to it in the Government's 1951 budget. The combined Army and Air Force budget was increased principally to provide new equipment and specialized training for a few modernized branches, including the limited purchase of jet planes. The Navy will receive an increase of 18 percent over its budget of last year, to enlarge the Naval Academy and expand cadet training.—*The New York Times.*

TURKEY

Increased Industrial Production

Turkish industry contributed only 8.8 percent of the national income in 1942, but in 1949 this rate had increased to 17.6 percent. It is believed that by the close of 1953 this figure will rise to 25 percent or more.—*The New York Times.*

Counterpart Funds

The Mutual Security Agency has announced the release of 58½ million dollars in Turkish counterpart funds to increase the size and efficiency of the Turkish Army. The counterpart fund consists of local currency put up by the Turkish Government to match United States military grant aid under the Marshall Plan.—News release.

IRAN

Barter Pact

Iran recently announced that she had agreed to export oil to Hungary under a new barter trade agreement.—News release.

CANADA

Stock-piling Medical Supplies

The Government has announced that it has started a 2¼ million dollar program to stock-pile essential and scarce medical supplies in strategic points near potential air and atomic attack target areas in Canada.—News release.

Jet Transports

The Royal Canadian Air Force (RCAF) has announced that it is planning to purchase two *Ghost*-powered *Comet* transport aircraft. These planes will be used for the high-speed transport of passengers or freight, and to extend the RCAF's experience of jet aircraft operations.—*The Aeroplane,* Great Britain.

Minerals Output

Canada mined a record of 1¼ billion dollars of strategic and other minerals during 1951. In the last 10 years, the value of Canada's mineral wealth has doubled from the 560 million dollars of minerals mined in 1941.—News release.

THE NETHERLANDS

Tactical Air Force

The Netherlands recently announced the establishment of a tactical air force; the first milestone in the development of the Netherlands' air defense as part of her North Atlantic Treaty obligations.—News release.

HUNGARY

Industrial Production

Hungary has announced that her industrial production in 1951 was 30.1 percent higher than in 1950.—News release.

GREAT BRITAIN

Tanks Equipped With Electric Razors

British heavy tanks in Korea soon will be equipped with electric razors to make shaving easier. Electric razors specially adapted for use on the giant *Centurion* power units are being sent to Korea by an English firm.—News release.

Army Strength

Britain's Army now has a fighting strength of 10 divisions, an increase of about 30 percent during the past 12 months. Behind these stand 10 Territorial (equivalent to National Guard) divisions, which with the various independent Territorial brigades make a total of about 12 auxiliary divisions.—British Information Services.

Coal Production

Great Britain's nationalized mines produced 222,117,500 tons of coal in 1951, according to an estimate of the Ministry of Fuel and Power.

The output was an increase of nearly 6 million tons over the 216,308,000 tons mined in 1950.—News release.

INDIA

Machine Tool Factory

India's first machine tool factory will go into production at Bangalore in southern India by the middle of 1954.—News release.

Port Project

A 3-year port development project has been launched by the Indian Government to tap the resources of a 270,000-square-mile area comprising five states surrounding the Gulf of Kutch on India's northwest coast.

The project, to cost 28 million dollars, will enable the port of Kandia on the gulf to handle 400,000 tons of oil and 500,000 tons of general cargo a year.—News release.

SPAIN

Diplomatic Relations

The Spanish Cabinet recently approved the re-establishment of diplomatic relations with Japan, severed since 1945.—News release.

ITALY

United States Aid

Italy's Minister of Defense stated recently that the United States was paying almost 95 percent of the cost of Italian rearmament. He said that out of 200 million dollars Italy had earmarked for rearmament in the next 2 years, the United States would contribute more than 192 million dollars.—News release.

Steel Works

Italy's steel production will rise 20 percent by early 1953, thanks to a new steel works financed by a 31 million dollar loan from the Mutual Security Agency.

The new steel works will increase Italian steel output from 2½ million to 3 million tons annually. It is expected to assist in making Italy self-sufficient in steel production and also to reduce sharply the local cost of semifinished steel.—News release.

MOROCCO

Pipe-Line Construction

Work has begun on a pipe line to carry gasoline from the port of Casablanca to five United States air bases in Morocco.

The 20-inch pipe will run 24 miles to Nouasseur. Smaller lines will radiate to four other bases. The cost of the project, to be paid by the United States, is 28½ million dollars.—News release.

DENMARK

Oil Discovered

The first traces of oil have been found near Toender, in southern Jutland, close to the Danish-German border.—*The New York Times.*

ARGENTINA

Merchant Fleet

Argentina added 12 vessels of a gross tonnage of 141,787 to her merchant fleet during 1951, thereby bringing the total fleet to 130 vessels of approximately 900,000 gross tons.—*The New York Times.*

German Embassy

The Government has decided to return to Germany the building occupied by the German Embassy before World War II and seized after Argentina had declared war on the Axis. The building is now occupied by offices of the Argentine Foreign Ministry.—News release.

EASTERN GERMANY

Army Strength

East Germany's 54,000-man "cadre" army is now rated capable of preparing at least 25 divisions for combat duty in 6 months.—*The New York Times.*

Airfield Construction

The Soviets are continuing to build airfields in Eastern Germany under forced draft, in order to make operational all those fields which the Germans had built but which the Soviets have not used, as well as to improve the ex-German fields from which they have been operating.—*Aviation Age.*

Naval Flotilla

The naval flotilla of the East German People's Police rose from fewer than 20 to 40 vessels during 1951.—News release.

Business Decline

More than 16,000 private industrial, trade, and handicraft enterprises in Eastern Germany went out of business during 1951. Moreover, the number of bankruptcies of private enterprises in Eastern Germany is still on the increase.—*Information Bulletin:* (Office of the US High Commissioner for Germany).

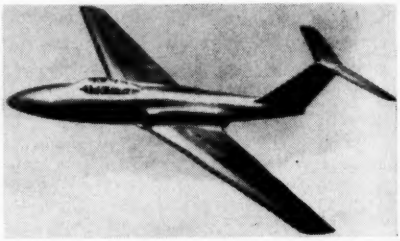
USSR

Steel Production

The Soviet Union has announced that its steel production in 1951 was about 35 million tons.—News release.

Soviet Jet

The Soviets have developed a new twin-jet fighter which probably will be used either as a night fighter or ground-attack aircraft. Not much information concerning the fighter is available except that the wing span is about 26 feet and the length about 28 feet.



Artist's drawing of the new Soviet jet.

The power plant consists of two axial flow turbojets, probably *M-012s*, having a rating of 6,600 pounds thrust. This would give the Soviet model a thrust of 13,200 pounds, approaching that of the much larger twin-jet *Canberra*, powered by *Avon* engines, with a total of 16,000 pounds thrust.—*Aviation Age.*

Satellite Air Forces

Over the past year, it is believed that the Eastern European satellites of the Soviet Union have had their air forces doubled in strength to a total of more than 2,000 aircraft, mostly fighters, fighter bombers, and trainers.

While many of the aircraft are obsolete piston-engine types, about 100 *MiG-15s* are believed to have been supplied to the principal air forces, particularly Poland and Czechoslovakia.—*The Aeroplane*, Great Britain.

FOREIGN MILITARY DIGESTS

Resistance Movements

Translated and digested by the MILITARY REVIEW from an article by Captain Stig Waldenstrom in "Ny Militar Tidskrift" (Sweden) Number 11, 1951.

IN SEVERAL Swedish articles which have been written about resistance movements, it has been pointed out, among other things, that:

1. An active Swedish resistance movement has a definite place in our defense plans.

2. Peacetime preparations are necessary if a resistance movement is to operate efficiently in areas of the country which are occupied by an enemy.

3. The activities of a resistance movement must be planned in conjunction with other operations.

4. If a country is entirely occupied, the degree of assistance offered by allied countries probably will be strongly influenced by the activities of the resistance movement.

5. Sabotage is a low cost combat means, and communication combat is its most important form.

In this article, an effort will be made to review the war lessons of the resistance movements in light of the situation in Sweden. However, in view of the scope of the subject, only certain aspects will be covered.

The Enemy's Intention

The occupying powers' conduct, in conquered areas during World War II, depended, primarily, on the object of the occupation. If, for example, the object was to incorporate the occupied area within their own countries (such as the German and Soviet conquest of Poland in 1939), the well-known occupational methods, involving liquidations, deportations, shifting of populations, and concentration camps, were put into operation as quickly as possible. If, on the other hand, the object was to prevent the opponent from using the area (such as the German occupation of Denmark and Norway in 1940), the occupation was characterized, to begin with, by relative mildness. However, after a time, even those countries had to endure ruthless occupational methods.

Sweden's strategic position—located as it is in the border area between East and West—makes the country, from the standpoint of the East, vulnerable to the latter form of occupation. Thus, the possibility of an attack on our country during the early phases of a future war is very great. For this reason, we must be prepared to mobilize our defense forces rapidly, and such forces must include an active resistance movement.

Activity in General

The most important condition for an effective resistance movement is a vigorous

will on the part of the nation to resist the enemy's occupation. This was not a major problem for Poland, because that country had fought for its existence many times in the past. However, for a country such as ours, where the opinion is frequently expressed that it would be better to bow, submissively, to the occupying power, and attempt, in tranquility and peace, to weather the storm, the will to fight for our freedom must be fostered and maintained.

NUMBERS OF GERMAN TROOPS AS COMPARED WITH THE POPULATIONS AND SURFACE AREAS OF VARIOUS OCCUPIED COUNTRIES

COUNTRY	AREA (SQUARE MILES)	POPULATION	OCCUPATION FORCES	INHABITANTS PER GERMAN	GERMANS PER SQUARE MILE
FRANCE	212,736	40,000,000	500,000	80	2.4
BELGIUM	11,775	8,000,000	100,000	80	8.4
HOLLAND	12,883	8,500,000	100,000	85	7.8
DENMARK	16,556	5,600,000	40,000	90	2.4
BALKAN COUNTRIES	155,932	21,000,000	200,000	105	1.3

FIGURE 1

The mission of a resistance movement is to hinder the enemy's activity. Therefore, the fields of activity of a resistance movement may be divided into the following:

1. Intelligence.
2. Propaganda.
3. Sabotage and guerrilla warfare.

Degree of Activity Varies

The degree of activity in these fields varies greatly during the various phases of the occupation. Since, for security reasons, peacetime preparations can never be complete, the major part of the movement must be instituted after the outbreak of hostilities.

The first activities are begun in the fields of intelligence and propaganda. Intelligence activity, in the initial phase, is almost entirely in the field of strategic intelligence. Propaganda, during the initial phase, has the important mission of bolstering the morale of the people. Sabotage and guerrilla activities, on the other hand, come into being quite gradually, and reach their highest peak at the time of the counteroffensive. This latter point is important, because experience in the last war showed that the activities of the resistance movement must be co-ordinated with strategic moves. For example, when the entire resistance movement was unleashed in an occupied area before the beginning of the counteroffensive (such as in certain areas of France), it resulted, as a rule, in failure. However, when the resistance movement was allowed to get fully under way only after the counteroffensive had gained some ground, favorable results were obtained.

Influencing Factors

A number of factors influence the effectiveness of a resistance movement; however, only the most important of these will be covered here. Geographic conditions have a decisive influence on a resistance movement's activities. One of the ways in which geography influences such operations is apparent from the fact that the larger the area of the country the more difficult it is for the occupying power to maintain surveillance over the population.

For a country the size of Sweden, an occupation force of from 200,000 to 300,000 troops should not be regarded as abnormal. On the basis of the first figure, this would mean around 35 inhabitants for each occupation soldier, and about 1 occupation soldier for each square mile of

territory. Such an estimate can be compared with the actual occupations of the last war, which are shown in Figure 1.

A further indication of the influence which geography exerts on the intensity of sabotage and guerrilla activity is provided by Figure 2, which is based on the resistance movement in France during the last war.

If these factors are compared with the conditions in Sweden, it is easy to see that our level areas would be well suited for sabotage activities, while our large forest areas would favor large-scale guerrilla actions.

Other factors which influence the effectiveness of a resistance movement include the duration of the war, the ability to receive outside assistance, and the degree of support offered by the country itself. Every resistance movement assumes its own peculiarities and special characteristics.

Peacetime Preparations

What preparations are necessary? In his book *Secret Forces*, F. O. Miksche states that, among others, the following are necessary:

1. A well-organized, independent, supreme command.
2. A special air transport corps and suitable airfields.
3. Decentralized stocks of weapons, explosives, and food supplies.
4. Fully organized training centers for the training of agents, liaison officers, parachute troops, radio operators, and other specialized personnel.

To bring about any more comprehensive peacetime preparations is probably not possible in our country. Among other things, there would be a great risk of unnecessarily and accurately orientating enemy counteraction at the beginning of hostilities. However, by giving our men good military training, with particular emphasis on resistance movement activities, much should be gained.

Command

In order that the resistance movement may be co-ordinated effectively, there must be a number of command agencies. However, their collaboration must be reduced to a minimum in order to prevent the enemy from learning about their plans and activities and effecting countermeasures. It is conceivable that the activities of the resistance movement could be directed from a headquarters outside of the country, or from one located in unoccupied territory within the country. However, there must be a command agency located within the occupied area to direct the active portion of the movement. Propaganda and intelligence, on the other hand, do not require command agencies within the country, because they can be directed from outside the country.

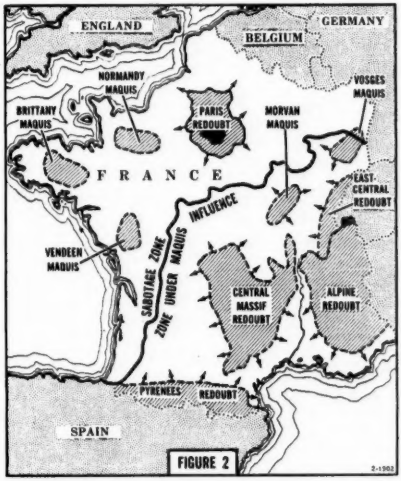


FIGURE 2

Regional Commands

In order to provide active co-ordination for the various sabotage and guerrilla activities in a given portion of the country, regional command agencies are required; and these must possess a high degree of co-operation and collaboration so that un-

necessary gaps in activities and duplications of effort are avoided. In this same way, activities can be concentrated on the most important objectives, depending on the existing circumstances.

Intelligence

During the initial phase, primary emphasis is placed on obtaining strategic intelligence information. However, this emphasis gradually changes, and, during the occupation phase, intelligence activities are directed toward obtaining information of both a strategic and tactical nature. An illustration of the scope of this strategy is provided by Figure 3, which shows the location of intelligence teams in France just prior to the Normandy invasion.

Liaison Required

The effectiveness of the intelligence organization is dependent, to a great extent, on a rapid and efficient liaison service. While liaison with other countries (not occupied areas) is maintained primarily by radio, all available means of communication—radio, telephone, and courier—are employed within the occupied country.

The danger of discovery by means of signal intelligence is very great, as was proved in Poland during the last war. German signal intelligence patrols generally were able to determine the location of a radio station, by means of direction finding procedures, within an hour's time. Nevertheless, by operating radio equipment in large cities or dense forests, signal intelligence was made more difficult for the Germans.

Propaganda

Propaganda's most important mission during the initial phase is that of bolstering the morale of the people and creating the will to resist. After the initial period, while the resistance movement is being organized, its primary mission is to "keep the flame burning." All means are employed in accomplishing these tasks, including the press, radio, and leaflets.

Sabotage and Guerrilla Warfare

Sabotage and guerrilla warfare represent the active resistance of an occupied nation. From the standpoint of international law, sabotage units are illegal elements, while guerrilla formations, which are normally in uniform, represent legal combat organizations. However, the enemy often does not respect this line of demarcation.

During the initial phase, the primary objective of such forces is to block the enemy's advance. During the occupational phase, the mission is to immobilize and wear down as many of the enemy forces as possible.

In the following paragraphs, only sabotage activity will be discussed, because guerrilla warfare is generally well understood in our military circles.

The greater the technological development of a country, the more vulnerable its social group is to attack. Therefore, industry's requirements and demands for rapid and dependable communications favor sabotage. Moreover, the advances that have been made in the technique of sabotage have made it low in cost in comparison with its results.

During the initial phase, sabotage activity will not have to be resorted to on a large scale, because it is presumed that planned communications destruction will be carried out by the forces engaged in the holding operations. However, this type of activity will increase progressively during the occupation.

Active participation in sabotage activity is considered one of the most dangerous tasks of war. In Denmark, for example, it was estimated that a saboteur lived but an average of 3 months before being killed by the enemy.

The Weapons Problem

One of the greatest handicaps to the

intensification of sabotage activity is the lack of weapons. This is true even where the resistance movements are able to manufacture or capture weapons, or where weapons are brought in by air from other countries and dropped for use by resistance personnel.

As soon as sufficient weapons are obtained, "secret armies" should be formed so that once an invasion or major counter-offensive is made the resistance movements can intensify their activities behind the enemy's lines, or maintain law and order in the liberated portions of the country.

In the event that our country is occupied, the occupying power would require the use of our communications and industries. Thus, it is clearly evident that sabotage activities would play an important role in the resistance movement. In addition, the terrain conditions in our country favor this form of warfare. In this respect, our parachute forces and frogmen would be able to undertake important missions in this field.

Recruiting and Training

Although comprehensive recruiting for resistance movements should not be carried on in peacetime, for security reasons, it must be started during the initial phase. Moreover, if the question of command has been settled in advance, this recruiting can be facilitated considerably.

There are many problems involved in recruiting personnel for the resistance movements. Active resistance requires personal aptitudes and qualities of the highest order, and many persons will not be able to meet the necessary standards.

Supply and Maintenance Problems

The enormous requirements of a comprehensive resistance movement place great demands on the supply and maintenance service. In part, these requirements could be met inside the country itself from previously stored supplies, from its own manufacturing facilities, or from matériel seized from the enemy.

In Poland, and to a great extent in France, the personnel of the armed forces succeeded, at the time of the occupation, in caching a large quantity of weapons which were of great value later to the resistance movement. However, as a rule, the main part of the equipment and maintenance must come from other countries. Thus, Denmark and France obtained the greater part of their necessities from Great Britain, whereas Poland assumed the responsibility for manufacturing a large part of her requirements because of the long transport flights required to bring matériel into the country.

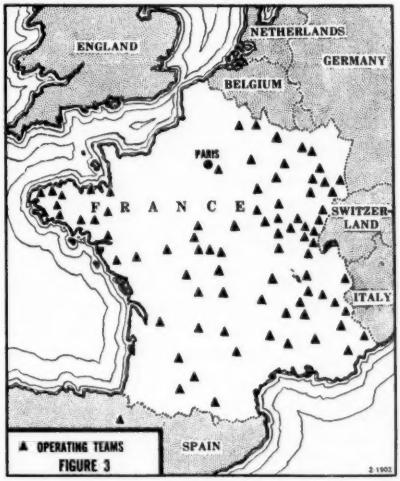


FIGURE 3

Conclusion

It is, of course, impossible to go beyond certain limits in determining how a Swedish resistance movement should operate. This is due, in part, to the fact that we have not had experience in this type of warfare, and we do not know how the country would react to such a situation.

The effectiveness of a resistance move-

ment in this country would depend on a number of factors, including the enemy's occupational methods, the engagements of our own armed forces, and the possibilities of receiving assistance from other countries. In order to plan for an effective resistance movement, these problems must be discussed and possible solutions studied.

If our country is invaded, and our forces are compelled to fall back from any part of our territory, a resistance movement should be ready to take over immediately in the occupied areas.

If we take the worst eventualities into our defense plans, we shall not find ourselves facing any unpleasant surprises.

Our Scout Rangers

Digested by the MILITARY REVIEW from an article by Captain Eulogio M. Dua in the "Philippine Armed Forces Journal" August-September 1951.

ALTHOUGH less than a year old, the Scout Rangers have proved their mettle in many Army operations.

The Scouts' Ranger Training School was activated in November 1950 at Fort McKinley, and offers 10 weeks of rigid training in commando tactics. The first group of trainees was composed of 12 officers and 100 enlisted men, all volunteers selected from battalion combat teams in the field. Of this group, only 9 officers and 61 enlisted men were graduated.

The rigid training paid dividends. On 2 June 1951, accounts of the Scout Rangers were carried in the metropolitan dailies. One report stated, "The newly organized Scout Rangers . . . scored their first Huk casualties . . . in a rough-and-tumble clash in the mountains beyond Olongapo, Zambales. . . ."

Again, on 13 August 1951, another newspaper account stated, "In a classic intelligence and combat mission which launched the current 'Operation Omaha' at Mt. Dorst in Pampanga-Zambales border, the Scout Rangers . . . struck again deep into Huk territory and surprised a heavily armed Huk outpost. . . ."

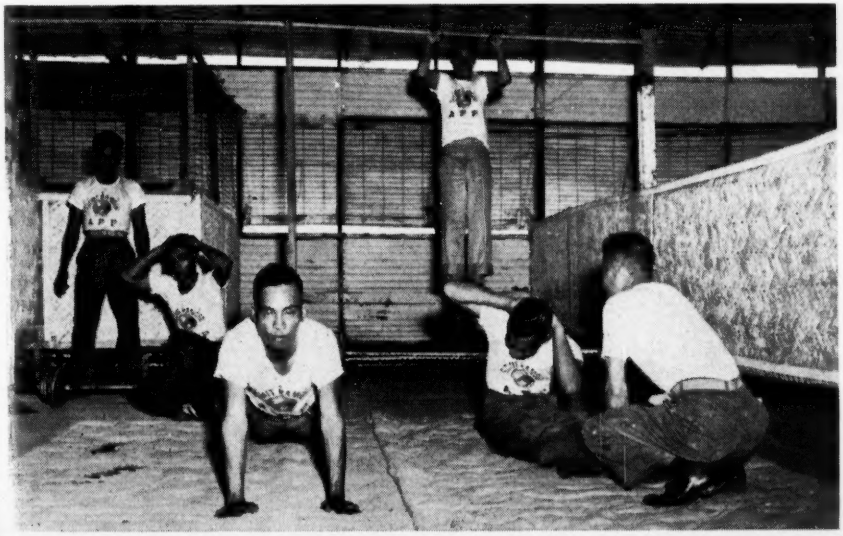
Our Scout Rangers have a tradition to uphold. The Alamo Scouts, after which the Rangers have been patterned, established their reputation during World War II, and were credited with completing 60 combat intelligence missions without losing a man.

In order to qualify as a member of the Ranger Scouts, each candidate must master the tactics and techniques of scouting. He must pass a rigid test in day and night movements, concealment, observation, direction, and deception. Above all, he must master his weapons and special equipment.

Of particular interest to the Scouts' Ranger Training School visitor is the rigid training and the specialized instruction which the Scout Rangers receive. Knowing that the Scout Ranger must have confidence in himself, in his teammates, and in his equipment, the school has devised a confidence firing course as one means of developing this quality. During confidence firing, one Scout Ranger holds a cardboard target with a black circle, the size of a half dollar, pinned on a 1-foot stick, while a teammate fires at it from a distance of 30 yards. Similar training devices are used to develop other prerequisite qualities of the Scout Ranger which include stamina, resourcefulness, and tenacity.

All of the training at the school is designed to produce a fighter who is highly qualified, both individually and as a member of the team, because the Scout Ranger plays for high stakes.

The trainees at the Scouts' Ranger Training School receive a well-rounded course of physical conditioning, for they must have the physical stamina and ability which will make them masters of their particular type of combat. Above, trainees weaving through an inclined ladder; part of their daily training. Below, an indoor physical training class.



Scout Rangers are trained to be strong, alert, and wily—like the panthers whose stealthy movements they emulate—so that they will be able to prove their superiority over the enemy, and thereby accomplish any mission assigned. Above, Scout Rangers making a landing during a tactical mission. Below, Scout Rangers operating in forest country.

The Changing Pattern of War

Digested by the MILITARY REVIEW from an article by Aquila in "The Royal Air Force Quarterly" (Great Britain) October 1951.

WE OFTEN hear it said that no two wars are alike. Moreover, it is difficult to see any good grounds for supposing that they should be similar. Innumerable melodies have been conceived from but a few musical notes, and in war innumerable patterns have been woven from a few major factors: that is, factors like geography, the means of movement, weapons, and man's ingenuity in combining them in defense and offense. In the jungle, conflict depends mainly on brute force. For a long time, the issues of wars between nations depended mainly on numerical strength in men and arms. However, it was not so much numerical strength in men and arms but the adroit use of the power to control seagoing commerce that raised Britain to pre-eminence in the maritime world. As scientific and technical progress continues to lift the barriers of distance from the eyes and ears of the peoples in all parts of the world, nations also may contrive to impose their wills upon each other by political persuasion.

And so the conflicts of our time do not rest alone upon brute strength but upon an increasingly complex pattern of political, economic, and strategic factors, in which the independent values of each may be infinitely diverse. Nevertheless, armed strength remains the ultimate force of diplomatic persuasion!

Maintaining Freedom of Action

From a military point of view, the art of war was long ago expressed by Xenophon as the "art of retaining one's freedom of action"—that is, freedom to move decisive force to the right place at the right time, and to prevent the enemy from doing the same. For a long time, the technical limitations of man's means of movement confined the spheres of warlike action to the sea and land, and the resultant pattern of political, economic, and strategic factors divided the world into two broad groups of powers—continental and maritime.

In these conditions, Britain was secure against direct invasion as long as she could maintain her freedom of action at sea. The spread of trade made her increasingly vulnerable to indirect attack on the seas and it was there that continental powers contrived to threaten her. Meanwhile, she could exploit her freedom of action to assault the enemy coasts where and when she liked in a series of limited operations. While land communications severely restricted the supply and movement of force, Britain generally could concentrate greater force wherever she chose to strike.

Influence of the Industrial Revolution

Perhaps the first major change in this pattern of war between continental and maritime power was brought about by the industrial revolution. Britain became even more dependent on the control of the sea, not only for her economic wealth but for her fighting strength—especially oil for her ships. Technical ingenuity gave her enemies the U-boat, whose freedom of action was largely independent of her control on the surface. On land, the railway permitted the concentration of huge armies that could be kept in the line indefinitely.

Both of these changes altered the pattern of war in favor of a continental power, and, in 1914, the balance had to be redressed by allying herself with France in a major land war. On land, the balance between the defensive and offensive power of weapons led to a war of attrition. In

broad terms, the German armies were contained in France and British naval might was contained in the North Sea until, finally, the deadlock was broken when the economic strangle hold of the allied blockade proved more decisive than the German U-boat campaign.

In World War I, the U-boat had challenged the control of the sea. In World War II, the airplane was to challenge both the control of the sea and land. The German armies overran Poland and France, exploiting their full strength under their ascendant air forces. The allies were already weak on land and were further weakened by the enemy air action. They might have held if the enemy air forces could have been beaten off, and would have been doubly strengthened if they also had been given strong tactical air support. However, the strategic and tactical balance left them at a hopeless disadvantage.

In 1940, the Germans hoped to snatch temporary control of the Channel to invade Britain. They pitted their air forces against the defending sea and air strength. However, the British held the *Luftwaffe* at bay, thereby guarding the air approaches to her industrial and economic heart, securing the seas for her shipping and naval craft, and keeping the geographic barrier of the Channel intact against German military invasion. Nevertheless, Britain was still to suffer sharp setbacks such as at Crete, where the German air forces successfully isolated the island and destroyed armed resistance on land, and in the Far East, where the Japanese air forces nullified British control of the sea and opened the way for their invasion of Malaya.

Safeguarding Industrial Centers

Meanwhile, the great industrial installations and the huge flow of supplies required to support modern fighting strength left nations more than ever dependent on the security of their economy, their centers of industry, communications, and workers. As their vulnerability increased and the power to attack them multiplied, so the economic war extended in scope, and the pattern of war became more and more a contest for control of the approaches from which the greatest danger threatened in defense and through which the most varied and dangerous action could be taken in offensive operations. In due course, allied air superiority allowed them to carry their attack deep into the heart of Germany to destroy the weapons of war before they could be produced.

The final stages of war in Europe were reached when allied control of the air had created the strategic and tactical conditions in which their land forces could close with the enemy. Strategically, German war potential had been weakened, and, tactically, the balance of weapons was heavily in favor of the allies. The German armies had been designed on the assumption that the air would be secured above them. They were heavily mechanized and fatally vulnerable to air attack. As German military commanders have so rightly remarked, it was only a matter of time before they were reduced to fighting "like a savage against the most modern European troops."

Prerequisite for Victory

Air superiority had become the condition for the effective prosecution of war and all operations of war. The changing pattern is generally accepted, but there is always the danger that the strategic and tactical influence of air power can be misread in a campaign like that in Korea. Strategically, the control of the air was unchallenged, and, tactically, the enemy armies were not held back without the use of large armies and great quantities of weapons and equipment.

However, think what might have happened had the Communists wrested control of the air from the United Nations forces.

Could sufficient forces have been landed in Korea to hold the peninsula? With air superiority, an adequate enemy air force might have reduced Pusan's capacity by 20 or 30 percent or more, and the tables might well have been turned. Moreover, how many ships could have reached Pusan at all? The support of the United Nations warships and carriers in the battle ashore would have been restricted, their offensive air forces based in Japan might have been confined to action under cover of darkness or bad weather, and their defensive fighters might have been powerless to cover the vulnerable sea and land communications or the troops fighting at the front.

In Korea, we see the challenge of a Communist army in its least vulnerable form to air attack—an Asiatic infantry army. It could be nothing else without control of the air, for the United Nations air forces would long ago have dislocated its supply lines carrying the great quantities of fuel, ammunition, road-making material, and heavy weapons it would require. The task of the United Nations troops would have been eased and the result would almost certainly have been decisive. Therefore, there is a tactical balance to be set between land, sea, and air forces in any particular form of warfare. The most powerful mechanized army tends to become the most vulnerable to air attack, while the least vulnerable is an infantry army content with the lowest standards of life and the most rudimentary weapons. Although the United Nations force enjoyed the tactical advantages of using modern land weapons without interference from the air, and with considerable direct and indirect air support, the strategic advantages were not exploited for very good political reasons.

Political Influence of Air Power

As has been pointed out by many persons, the political influence of air power is probably the main stabilizing factor in the world cleavage today. The Soviets could have marched long ago to the coast of Europe or to the shores of the Persian Gulf, but that would only have been the beginning. They would have been committed to an indefinite air bombardment, supported by a huge economic and industrial potential lying, for the most part, beyond their reach.

However, if they felt that by overruning the whole of the Eurasian Continent, including the considerable industrial potential of Western Europe and the manpower of Asia, they could challenge the New World, and, if they believed they could survive the unparalleled devastation they would certainly bring upon themselves, they might still think it worth the risk. Certainly, if they ever reached a position where they could give as good as they got, they hardly would hesitate—even though it might take them several years to turn their continental gains against their enemies.

Manning the Defenses

It is to guard against such a Soviet venture that the North Atlantic Treaty countries are preparing to defend their own soil, which also has become the bridgehead of Western power. This involves the establishment of a perimeter manned by a suitable balance of armed force to withstand the glowering might of massive infantry armies supported by heavy tanks and large tactical air forces. This, in turn, implies the maintenance of secure sea communications, and, farther back, the integrity of the industrial and economic potential from which it will draw its main supplies.

The tactical pattern of the land force of the North Atlantic Treaty Organization is based on a higher degree of mechanization than the Soviet's. This makes them all the more vulnerable to air attack, and they should, therefore, be complemented by proportionately greater air

strength. And yet, it is the enemy who has both the advantage of comparatively invulnerable armies and wields the larger tactical air force. Indeed, the main strength of the North Atlantic Treaty countries is their technical, industrial, and mechanical power rather than sheer manpower. If this advantage is not to become a disadvantage, the North Atlantic Treaty nations must strain every nerve to redress the balance of their forces and ensure certain and lasting superiority in the air.

Correspondingly, the comparative vulnerability of sea communications, exposed to attack from above and below the surface, also emphasizes the Western need for air superiority. Without it, shipping will be an easy prey for aircraft, and the surface vessels engaged in hunting the U-boats will be seriously impeded, while the air forces will be powerless to wage an effective offensive defensive. Finally, the major political benefit derived from the threat of preponderating air power will be nullified if the enemy doubts our power to exploit the highways of the air to attack the main centers of his war potential.

Forecasting Future Patterns

When we look farther into the future we can foresee the era of guided missiles both in defense and offense. These, too, will alter the pattern of war and the tactical balance of arms. Some people seem to think that air power then will cease to be a factor in war. However, as the power of missiles hurled through the air becomes greater, so it will be all the more urgent to control the air. And just as the sea may often be controlled by air forces alone, so the air may one day be controlled without sending a single man aloft. Indeed, air superiority already is the dominant factor in war, and the issue of the air battle is likely to be even more decisive than the victories off Gravelines in 1558 or off Trafalgar in 1805.

Offense the Best Defense

Although the defensive weapons may be 10 times more effective today, the many factors affecting war are multiplying the opportunities for offensive action in the air 20 or 30 times, and its power increases in an even greater degree. War may progressively become a long-range bombardment in which the best and perhaps only defense may be the attack, as the infantryman with his rifle already knows only too well. Ultimately, the scientists may devise some apocryphal weapon which will destroy entire continents at a single blow, and then the only freedom of action left in war will be surprise—for he who strikes first will possess the ashes of his enemies for what they are worth.

Without air power, our strategic problem, which is world-wide, would be insoluble. Fortunately, the development of modern air power has made the problem manageable. Air power possesses the range, the flexibility, and the striking force to carry out our basically defensive strategy on a global scale. Given an adequate system of bases, it can be shifted rapidly from one part of the world to another, thus serving the interests of a strategy which, in the nature of things, must always be highly flexible.

General Hoyt S. Vandenberg

The Study of War

Digested by the MILITARY REVIEW from an article by
Lieutenant Colonel M. P. O'Hare in the "Australian Army Journal" October 1951.

Military History

AROUND us the stage is being set for one of the greatest conflicts ever witnessed by mankind, a conflict in which the degree of our survival will depend on our military efficiency. It is the purpose of this article to examine the study of war and indicate the most effective way in which we can learn from the experience of others, because there will not be time to learn from our own.

The Officer's Task

The average officer is led sooner or later to realize that the only way he can make himself master of his profession in peacetime is by the study of the history of war. No planned career can substitute for constant, inquiring, intelligent study. The modern officer has a threefold task.

Technique

First, he must be an expert in his own arm. For example, if he is in the Royal Australian Armoured Corps, then he must study tanks. He has to know so much about tanks that he is at home with any tank after a brief inspection.

Tactics

Second, he must be master of the employment of his arm in the team. He must be familiar with the organization, tactics, and role of every element of the armored division, and of a tactical air force. He must be able to control artillery fire and to understand fully the deployment of an infantry brigade. He should be able to carry out a staff appointment appropriate to his rank. In short, an officer has more to learn than he can handle in a 40-hour week.

Leadership

These two divisions—technical and tactical—are still not enough. Any intelligent man, who goes to the schools of the given arm, to the Staff College, and who reads enough technical literature, can be a genius on tank design and unit organization. To be an effective officer, there is a third and all important requirement—an officer must be a leader, a leader who understands fighting. On the battlefield, an officer can manage on a limited knowledge of an electric clutch, but he can do less than nothing on a limited knowledge of war.

This knowledge can come only from a study of war in the past, combined with constructive thought on war in the future.

Study

As time is limited, this study must be effective. Therefore, the first requirement is a system of study which ensures that the time spent produces an adequate return.

Why should a soldier study military history? Can, for example, a junior officer learn anything from a close and detailed study of the Battle of Hastings which would help him command a self-propelled battery in a tank battle on the Kara Kum Desert? Can a general, charged with the defense of the Northern Territory, draw conclusions of value from the siege of Syracuse?

Obviously, there are no direct deductions from one battle which can serve as a template for another. Later, it will be seen that there is a vast pattern of war, but there is not, and never can be, any formula. History does not repeat its minor details. What then do we require from the study of history?

Requirement

This is a question the answer to which is clouded to a remarkable degree. The

first, and usual, answer is "To become familiar with, and to understand, the principles of war." The second answer is "To be so familiar with all the possible situations in war that a correct solution of any battlefield problem is automatic." The dangerous part is that both answers are reasonably correct, so the real purpose of the study of war must be clear. It is this: "To so develop the military judgment that in any situation the soundest course to achieve the aim can be selected and the correct orders issued to implement that course." That is all that has to be done, but it is a large undertaking and it is only human nature to seek a formula.

History Does Not Repeat

A moment's reflection will show that no two battles can ever be the same. The forces at work are subject to too much variation. Some of the factors which always vary are weapons, terrain, weather, national characteristics, training, intelligence, and the reasons for the war.

Chance or luck would appear to play a major role, but this is not true. It can be taken as axiomatic that fortune favors fire power and audacity; much of what is attributed to luck is, in fact, the ready response of a conditioned mind.

No battles then can be the same; they can hardly, except in a general way, be similar—despite the sickening resemblance of Verdun and the Somme. Consequently, the deduction of principles from the past must be a major aspect of the study of history.

History

There are a lot of misconceptions about history, but the main one is the idea that history is a unity. History in 1951 is not the summit of a long human effort by which man has raised himself from a primeval life in the jungle to the glory of skyscrapers, totalizators, and consumer credit. History is the story of civilizations. The story is only continuous where one civilization is derived from a preceding one, and then it is not continuous as is a Shakespearian play, or a moving picture. Great civilizations rose and fell in the Americas without influencing or being influenced by the civilizations of Asia.

Civilization

Civilization and history commenced about 6,000 years ago, when the desiccation of the steppes drove some men into the river swamps along the Nile, the Euphrates, and the Hwang-Ho. Here was no hunting and fruit picking, man had to get his bread by the sweat of his brow; here, under the stimulus of toil, did man for the first time start to reach up; for perhaps 300,000 years before he had made but limited progress.

Consequently, when reading history, we must read it against the background of the civilization it describes. There have been only 19 civilizations and very few of them came into contact with each other, and even fewer are directly related as are the civilizations of Western Europe to Greece and Rome. To underline the fact that history is not a continuous story, it is well to remember that, in 1800, England, in surgery, medicine, astronomy, general education, and sanitation, was as far behind the standard of Babylonia 4,000 years ago as Siam is behind Australia today.

The Historian

The readers of history can be divided into three groups:

1. Those who enjoy the fascinating story and who have no real interest in distinguishing between fact and fancy.

2. Those students whose revision and research is intended to complete the tale, remove inaccuracy, and fill in the blank spaces. These are the historians.

3. Those who study history to trace the trends of the past with a view of projecting them into the future, whether the

trends be in the legal, political, economic, or military spheres. We, as students of applied history, fall within this group.

The Soldier and History

The soldier is rarely a true historian, and, therefore, goes to the works of others for his raw material. He must then evaluate correctly the reliability of his source.

Accuracy

It is essential to be honest with ourselves on the question of accuracy. We have to realize that some history has been written by men who were primarily engaged in grinding their own battle-axes. Those who could reply may have been dead, or may have replied in an untranslated book.

Most writers tend to inject their own opinions and prejudices into their subject; this is inevitable, and in many cases, such as H. G. Wells' *Outline of History*, adds interest and flavor to the work.

The student of war must weigh carefully the opinions given in books published immediately after a war. It is most noticeable that few writers say "I made a serious mistake at . . ." and fewer still in their list of lessons learned say "If I had done so-and-so I would have taken . . . with fewer casualties." As many sources of information as possible must be balanced.

Official Histories

In the same way, the official accounts fail to give the real story. Many a commander has signed an instruction or issued an order for reasons not given in his unit or formation war diary.

The Remedy

Accuracy is a problem to the student. Private accounts could be colored by the opinion of the author, while official documents give only the final orders and a description of the actual results. The points of real interest do not appear. What was said around the conference table? Records give the decision made, reasons are often distorted, omitted, or added to in the light of after knowledge.

Rarely in a commander's orders is there mention of pressure on him from his superiors, or of reluctance by his subordinates. These gaps can be filled in only by imagination, and such a military imagination can be developed only by a long study of wars and of the men who fight them.

Geography

The next problem which faces the student of military history is to decide upon the amount of detail it is necessary to read. On the one hand, there are the official histories with the hour by hour lists of the location of minor units, and, on the other hand, there are personal accounts containing vague generalities omitting any comment on days of fighting.

The desire of most readers to find out as much as possible once a start has been made leads usually to the assimilation of too much unnecessary detail, with the consequent result of failing to see the tree because of its leaves. Not much detail need be studied if the account is read in conjunction with a first-class map.

Physical Features

The influence of geography on war is profound. Geography decides obstacles and communications, prevailing weather, local supplies, and a host of other factors which vitally affect war. The story of a battle without a clear picture of the terrain is like a record without a phonograph.

Unfortunately, good maps are scarce, except in official histories, and even a good atlas tends to be on too small a scale. The great majority of war books contain small maps which are mostly diagrammatic; they do not show the physical features; indeed very few of them show all the towns and rivers and roads mentioned in the text. In the same way, the scale of the

map is important. No one is going to learn much by studying the 1941 battles in Russia on a 5- by 7-inch map, as appears in the standard type of book.

Remedy

When a book lacks maps, it must be read in conjunction with the best available atlas. If an atlas does not give a reasonable picture of the ground, then the student must perforce to the library, where books on previous or subsequent wars may contain suitable maps, or, failing books, a long search through military and travel magazines is the final resort.

The Principles of War

The newcomer to military history always is impressed with the necessity of being familiar with the validity of, and application of, the principles of war. With the need for familiarity, there can be no argument. However, the student must understand that the principles of war alone are not enough. To know 10 or 100 examples of the application or nonapplication of the principles does not make a tactician or a strategist.

The principles of war are as necessary to a soldier as is a rifle to a sniper. As a sniper uses the rifle as part of his organism, unthinkingly, unhesitatingly, and automatically, so then must the strategist use the principles of war. They are a means to an end.

Examination of the Principles

At the moment, we have 10 principles; some have been in the list for centuries, others are included and excluded according to the views of the soldier of the hour. All 10 are sound. To disregard any of them is to invite trouble. However, some tend to be redundant, while others probably as important are not included in the list.

Administration

If there is a failure of administration, there undoubtedly will be a failure of the relevant operation, but that does not make it a principle. If a complex night attack is carried out with untrained soldiers, there will be a failure, but training is not a principle. It is so obvious that a military operation must be planned within the means available that inclusion of administration as a principle is open to question. A motorist would not go driving on a garage holiday with an empty gas tank, but he might coast down hills or exceed the speed limit; his administration is axiomatic, but his economy and security are matters for his balanced judgment. Similar argument can be used against flexibility and co-operation. There are other factors which merit consideration as principles.

Propaganda

In the world today, a major effort is being made in the propaganda field. Propaganda is big business; it is most important international business. Although propaganda is closely related to morale, morale is the derivative not the principle. Propaganda could well be listed as a principle with the aim of gaining and maintaining public goodwill. The vital military significance of fifth column activity or of determined national unity is obvious. Propaganda is more important than morale, which is too narrow in its meaning and too circumscribed in its application. The military use of propaganda must be on a large scale. It is a war in itself, permeating the fabric of society from the nursery to the battlefield, and reaching out to ally and to enemy alike. Long and effective propaganda can destroy nations. In 1940, France was defeated by a lack of unity and a loss of faith, the pace of the panzers alone would not have been decisive.

Simplicity

The most striking features of all the decisive battles of history is that they were won by the rapid implementation of

a simple plan. Without simplicity, there can be no flexibility, and co-operation is difficult. Simplicity could be classed as a principle.

Audacity

Audacity is usually the basis of spectacular success in war, and is obtained by a combination of speed and surprise, by the application of true generalship. It is too complex to be considered as a principle, but it is a fundamental attribute of the successful commander.

Psychology

Knowledge of psychology is essential to the comprehension of both politics and history, and is basically essential to the comprehension of war. Psychology is the science which deals with the nature of the mind and with human behavior; human behavior is depressingly similar irrespective of nationality.

The widespread tendency to identify geographical areas with typical people, or with a typical person, is one of the most pernicious features of modern nationalism. Few would accept Uncle Sam or John Bull as typical of the United States or the United Kingdom, but the use of these symbols prove that the vast majority attribute to the state many of the characteristics of a human being. The effect of this fallacy on international relationships since the French Revolution has been profound. The effect of it on armies is equally profound; when a soldier can be led to believe that he himself is the embodiment of his national characteristics, a fanatic is born.

Wars are made by and fought by men, and the result in war is the result of human behavior, both in the mass and in the individual. The effect on the destiny of men such as Churchill, Lincoln, Napoleon, or Genghis Khan needs no elaboration. The point of importance is for the student to decide the relation between the leader and the led. Is the leader a single figure who inspires and dominates those who do his bidding, or is he the focal point, the figurehead of a mass movement?

Related to the effect of psychology on war is the fact that some of the momentous actions in history have arisen from minor causes, from court intrigue, from personal antipathy between officers, and often from the greed for power which, with some men, matters more than God, country, or comrades' lives.

Psychology is sufficiently important, then, to require serious consideration by all soldiers.

It is stressed that these paragraphs are not intended to decry the principles of war—far from it. Principles alone are not the goal of study.

The Elements of Battle

The art of generalship is more than a knowledge of the principles of war. A sure strategic touch is the combination of many factors. In the technical direction of battle, only three things matter. Battles are won by the correct relation of *speed*, *space*, and *force*. These elements are not principles, they are attained by the application of principles.

Speed

Speed in war is not only miles per hour and the power-weight ratio of cross-country vehicles. It is the product of study and training. It is an attitude of mind. The operations of J. E. B. Stewart, Sherman, and Von Kleist show the performance of commanders who understood speed.

Space

Space can be defined as the three-dimensional zone from the main support area to the front which is dominated by the armed forces of a theater deployed along the axis of decision (Napoleon's line of operations).

The movement of armed forces must be within sufficient space to ensure that the

objective is not approached so directly that the defender can concentrate to counter the move. The German drive on Stalingrad and the allied advance to the Rhine were the two extremes of a misconception of space. The United States operations culminating at Okinawa were classically correct.

Force

Force on the axis of decision must appear overwhelming, yet force is best used as a threat. With modern weapons, the strategic attack must be combined with tactical defense. The German conquest of France in 1940 is a shining example.

Handmaids of History

The study of history relative to our given aim cannot be divorced from the study of people and of geography. Little value can be obtained from the contemplation of a battle apart from its social and political setting. Therefore, the student of military history must extend his research into other fields. Modern wars are essentially political, but the decision is still made on the ground.

Politics

Politics has been defined as "the whole system of principles and forms of administration concerned with the theoretical and practical aspects of social organization." This is quite a sweeping statement; for military purposes something more definitive is required. We assume that politics means those actions of an area in matters of state which direct its internal program and its relations to external areas.

Geography

Geography is the science which deals with the description of the earth's surface. The aspects most necessary to the soldier—topography and communications—have been discussed above.

Political Geography

Political geography is a dish of geography and politics liberally salted with history. This subject receives little attention in Australia, and it is worth while to consider why. There are two main reasons, and one is ignorance. The great majority have either never heard of it, or have heard vaguely of its use by the Germans. The usual reaction to the strange is one of suspicion; further, it is thought that this field of knowledge is of very recent development, and is, therefore, on a par with other pernicious modern 'isms. Of these, the most important is the association of political geography with Nazi plans for world domination. It has been blackened as an instrument of evil, a pseudoscience closely allied with, and subservient to, the *herrenvolk* and the Aryan superman, in which connection it was known as *geopolitik*.

In fact *geopolitik* is neither new, pernicious, nor pseudo. Science cannot be classified as right or wrong. Only the use to which a science is put determines its morality. Geography and politics are two of the oldest studies of man. In the Cairo museum there is a map of the Sinaitic Peninsula dating from 1270 B.C., while principles of politics 2,000 years older are hewn in Sumeric stone. A combination of the two was first achieved by the philosopher, Immanuel Kant, in the eighteenth century. In the nineteenth century, much development was done by Friedrich Ratzel, a German, and his contemporary, the Swedish professor, Rudolf Kjellen; but it was not until 1904 that political geography could be recognized as a science and was given a new dynamic conception.

In that year, the British geographer and economist, Sir Halford Mackinder, addressed the Royal Geographical Society on a subject he called "The Geographical Pivot of History." His statements fell largely on uncomprehending ears, but not in Germany. The German who listened

was Professor Karl Haushofer, who saw in this new science both a vindication of and a pattern for German plans. Misuse of *geopolitik* by the Nazis is no more a reflection on its validity as a science than was the inquisition on the validity of theology. The German term, *geopolitik*, is more appropriate than the American term, political geography.

Geopolitics

The study of geopolitics is a vital and necessary corollary to the study of war. Particularly does this relate to the higher study of operations and to the education of those who may be called upon to formulate long-range plans. Geopolitics is a vast subject, and definitions differ widely. For the study of war, we will define it as "The relation of a nation to its space." In its dynamic sense, geopolitics is the study and appraisal of power, actual or potential. The basic tenet of the geopolitician is that all power stems from two factors, manpower and raw materials. It is no accident that coal, iron, working hours, and transport are the primary objectives of Communist subversion.

The Pattern of War

With this background, it is possible to sketch briefly the outline of war, and to examine the commitments of the belligerents.

The Political Commitment

Wars are of two types, total wars and limited wars. Limited wars have a way of becoming total, but limited wars have been plentiful. They range in scale from the maneuver campaigns in medieval Italy to the Russo-Japanese War of 1904. Total wars are exemplified by the Third Punic War, which resulted in the absolute destruction of Carthage in 146 B.C., and by World War II, which ended in the almost complete destruction of Germany and some of her neighbors. The difference lies in the aims of the warring nations. In Korea, the United States had appeared content with very limited aims, whereas in World War II that country demanded the same from Japan as Scipio demanded from the Citadel of Carthage.

The Military Commitment

A war, as distinct from battles in it, can employ two forms of strategy. These, from the writings of Clausewitz and Delbruck, are known as the strategy of attrition, and the strategy of annihilation. The decision as to which one to adopt is a result of the relation of speed and space. Should, for example, France and Belgium combine to declare war on a weakened Germany, then their correct strategy is one of annihilation. The core of German military power is the Ruhr. Considered in space the Ruhr is in easy reach, the Germans would have to defend it, and the war would be one of annihilation on the frontier. In a war declared by the Soviet Union on the United States, the Soviet strategy would be attrition, a gradual remorseless grinding down of men, material, and will. The two can be combined; the Soviet Union would employ a strategy of annihilation in Western Europe. The Normandy landing changed the last war, from a British viewpoint, from attrition to annihilation. It should be noted that usually a change from annihilation to attrition is the penumbra of defeat.

The People's Commitment

Wars are fought by people, and the prowess of people in battle is usually tempered by the will of their nation behind them. To fight, men must have faith in an ideal and in themselves. This is complex. Compare the tireless valor of the handful of British soldiers who conquered India, with the performance of the Italians in 1944. Here are great deeds done for an avaricious commercial company, and there is nothing done by a great nation in defense of its own homes.

The calculation, with accuracy, of national reaction to a hypothetical situation is not possible empirically. The ability to do it is the rarest trait of generals and statesmen. It is the hallmark of the great strategist.

The Nature of the Next War

A full-scale war means total war, no aspect of the life of our society nor of any conflicting society, nor of any would-be neutral, can remain unaffected by the struggle. In the past, most wars were fought for gain, for property, territory, or trade. The next war will be fought for ideals, and for the survival of our civilization. The enemy takes over not only the bodies and possessions of the victims, but also their minds and souls. Defeat would extinguish our way of life to a degree where skilled archaeologists would have difficulty in reconstructing it. Our society would, in a few centuries, present as great a mystery as does the life of the Mayan civilization. There still can be seen where the jungle has engulfed the massive ruins of Uxmal and Copan, but we know nothing of the men who once held back the tropic forests of Guatemala.

There is no reason to doubt that a materialistic civilization based on force and lies could not survive a thousand years. Technical progress would proceed in a spiritual vacuum. From a study of the past, we can be forearmed in the future.

The Method of Study

Some of the problems which confront the student of military history have been examined, and it now remains to outline an effective method of study.

The only sure method of study is by a continuous series of appreciations of the situation. This makes study slow. The appreciations can be mental, certainly they need not be written out in detail, although it is nearly always essential to make short notes. After reading an account of a battle, the student must be clear on four points:

1. What did each of the opposing commanders do, and why?
2. What would I have done in the place of each, and why?
3. What developments should each side have made for the next campaign in the war, or should the victor have made for his next war?
4. What effect has this on the command and control of our army today?

This process involves an appreciation from the point of view of the opposing commanders at selected stages in each battle or campaign, and it is an extremely difficult undertaking without a lot of practice. This is because we do not know accurately the bounds of the information available to each commander at the selected time. Also, we are in doubt, not only as to numbers of battleworthy troops, but on matters such as unit organizations and performance of equipment. Here again, judgment and imagination play the vital part. Where there is a decisive difference in equipment, as in rifles at the battle of Sadowa, then the records stress this. Where the student must be careful is in expressions such as "division" or "regiment." For example, comparison of United States and British forces for desert warfare on an infantry divisional basis would give a totally false impression, owing to the number of organic tanks on the United States division. On the desert—or the steppe—the tank is even more decisive than elsewhere. National variations in the significance of "regiment" are even wider.

The Basic War

The war which the student of military history should use for his recruit training is the American Civil War, 1861-65. This war is the most suitable on which to develop a systematic method of study, for the following reasons:

1. It is one of the best documented wars,

as the records and explanations of both sides are written in English.

2. The records are very complete and are relatively accurate. This, be it noted, despite the fact that figures quoted in various accounts, particularly of numbers engaged, vary by as much as 50 percent.

3. The accurate geography of each theater is available.

4. The political situation was relatively simple; full details of it are available, and its full effect on operations can be studied.

5. The war was on a huge scale, and was fought over great distances, giving wide variation in terrain and communications. It is not generally realized that this war was fought in an area as large as New South Wales and Victoria, and that there were more casualties in some of the major battles than there were British soldiers at Waterloo.

6. The background, mentality, and heritage of the participants were similar to our own.

7. Tactics were not subordinate to modern weapons, it being easier, therefore, to gauge the effect of theoretic alternative plans, while methods and maneuvers were sufficiently modern to be intelligible today.

Conclusion

Wars are won in the end on the battlefield. Here all the resources, the men, the material, the technique, the hope, and the will of the warring nations meet; here all that can be done by the scientists and statesmen, the factory and the farm, converge; and here the ultimate decision is forced by men in hand-to-hand fighting. Battle is the pay-off; but the students of history and geopolitics have the best chance of writing the check. The nation whose leaders study war can converge the national effort onto the most decisive field.

The study of war develops a military way of thought, and an automatic application of the principles of war becomes part of the soldier's being, just as the rifle becomes part of the sniper. Thus, the aim of the study of history is fulfilled, and the mental vision is stimulated to look over the hill, not only the shell-swept ridges of reality in front, but the shadowy ranges of the future beyond.

The grim struggle which occupies the entire world today is simply the latest version of the age-old conflict between freedom and tyranny. In the terms of our times, it is a battle between democracy and totalitarianism. It has accurately been described as a battle for men's minds—and we are joined desperately in that battle today. But unless we pursue the struggle unremittingly and unless we are armed with clear, unqualified conviction as to our purposes, we can have little hope of winning, without resort to a war which no nation would really win.

Secretary of the Army Frank Pace, Jr.

A West German Army?

Digested by the MILITARY REVIEW from an article by
Norman Walton in "The Journal of the Royal Artillery" (Great Britain) October 1951.

DISCUSSIONS regarding West German military forces have resulted in a large amount of argument, both favorable and unfavorable; much of which is specious or ill-founded. To get the proper perspective, we must go back, at least, to the Treaty of Versailles, so widely mentioned, but so little read.

Treaty Limitations

The military clauses of the treaty denied Germany an air force, submarines, major battleships, tanks, or heavy guns; and limited the land army to 4,000 officers and 96,000 men. Land forts had to be destroyed, as well as all equipment surplus to that permitted by the detailed clauses of the treaty. Moreover, the tools and equipment for making forbidden matériel also had to be destroyed.

Control Commissions

The reduction of the German armed forces and the destruction of the equipment and machinery were carried out under the close supervision of interallied control commissions. I have not seen it alleged that the naval or air commissions failed to enforce the portions of the treaty with which they were entrusted, but it has been suggested that the military commission was tricked with regard to munition works and effectives, and that stocks of weapons and ammunition were concealed.

Military Matériel

As to the last statement, I am not aware that any evidence has been produced to substantiate such claims. The German Army's equipment in 1918 was accurately recorded, and any pieces of any consequence were accounted for, to within a few, by recorded destruction in battle, surrender at the Armistice, or destruction certified by allied officers. A few new or unfinished guns may have escaped, but there does not seem to be any evidence that such concealments contributed noticeably to the rearmament of Germany. The interallied control commissions, the War Office, and, I believe, even the French War Ministry were satisfied that the clauses regarding military matériel were thoroughly carried out.

War Factories

The same applies to the clauses regarding war factories. A subcommission was in Krupp's for some years, and it only excused the destruction of equipment which had better peaceful than warlike uses. It was useless to destroy such equipment, as replacement with more modern types would not have been forbidden. Nearly all the jigs, tools, and blueprints for making forbidden equipment were destroyed. This, however, was not as important as the matter of ensuring that the Germans did not make new jigs and tools.

Military Effectives

The allegations relative to effectives have some foundation. The compulsory 12-year service in the *Reichwehr* was intended by the allies to prevent the building up of a large trained reserve. We knew, in the early 1920s, that the Germans were taking all steps that they could to make their 100,000-man army a cadre for one of 300,000, with possibilities for further expansion. While one of our subcommissions, responsible for this phase of the treaty, was still active in Germany, it was found that there was some turnover in men, leading to the building up of reserves; but this seemed to be done only on a small scale by a few overzealous unit commanders, and there was certainly no major infrac-

tion of the treaty. What happened, eventually, was that the allies lost the will to keep Germany disarmed. Later, Hitler's open extension and re-equipment of the German Army and the establishment of the *Luftwaffe* were permitted without effective protest.

That brings us to the real point with regard to German rearmament at the present time. It is of doubtful use to make conditions and set limits, because their future enforcement will depend on the continued will and power of the allies, and on the will of a future government of Germany to honor undertakings that may be given by the present German Government. The preparations for the *Befreiungskrieg* after the Prussian defeat of 1806 show, better than the resurrection of German militarism after 1930, how such limitations can be evaded.

The Present Danger

The present danger is the gathering attack by the Kremlin and its 700 million followers and slaves, in the face of which Western remobilization is so painfully and dangerously slow. If the half of Germany that is accessible to us can provide a useful contribution to their and our defense, it should be welcomed and encouraged, and no obstacles should be put in its way, such as restrictions on armaments, organization, staffs, and training.

The German Contribution

There are some valid questions as to the worth of a German contribution in men. Not only has the Soviet Union divided Germany geographically in two, but she has many zealous Communist agents in the Western half. In addition, the non-Communist population is also divided by recent history and old political grudges. Large groups doubt whether a Western alliance can save them from being submerged by the Red Army and question whether it might be a little less painful to go down docilely, rather than fighting. Can the present German Government, in the short time that remains, secure a sufficiently strong and united effort from their half of the country to justify the diversion of the allied resources necessary to complement the German effort?

Our political advisers on Germany consider that this can be done; and they should know. Therefore, no further time should be lost in quibbling. The German Government should be invited to develop its maximum military effort in the minimum of time and should be given every assistance in accomplishing this task.

Virtually every nation in the world today is involved in some way in the most fateful struggle that has taken place on the earth since the beginning of recorded history.

That struggle is the real "Battle of the Century," no matter how you may have heard that phrase otherwise applied. It is the struggle for peace and freedom against the threat of war and slavery. It is a struggle in which there have been, and will be, many moments of crisis. But for men and women of faith and courage and love for their fellowmen, the outcome of the "Battle of our Century" can never be in doubt.

Under Secretary of the Navy Francis P. Whitehair

The Geneva Conventions in Relation to the Armed Forces

Digested by the MILITARY REVIEW from an article by Sardar Bahadur Balwant Singh Puri in the "Military Digest" (India) July 1951.

IT IS not possible to describe in detail, in the space available, the various provisions of the Geneva conventions as they affect the armed forces, but this short article will have served its purpose if it stimulates an interest in the study of this important subject.

What Are the Geneva Conventions?

The four conventions that exist are:

1. The convention for the amelioration of the condition of the wounded and sick in armed forces in the field.

2. The convention for the amelioration of the condition of wounded, sick, and shipwrecked members of the armed forces at sea.

3. The convention relative to the treatment of prisoners of war.

4. The convention relative to the protection of civilian persons in time of war. In total, they contain 429 articles and cover more than 200 pages.

The story of the conventions had its beginning in 1864, when, as the result of a diplomatic conference called by the Swiss Government at Geneva, the historic first convention was signed by 12 powers. With the advent of new weapons and tactics in warfare, there arose a corresponding need for changes and developments in the measures to protect the victims of war. Therefore, three times in this century, in 1906, 1929, and 1949, diplomatic conferences have been held to alter, improve, and add to the existing conventions. The 1949 conference, attended by representatives of 59 governments, after 4 months of discussion, finalized the preparation of four "modernized" conventions and, today, 61 powers are signatory to these conventions.

The Purpose of the Conventions

The spirit of peace is in reality the spirit of the Geneva conventions. They are documents which set down not only the principles, but also specific details for the protection and care of victims of war. It is important to remember that they make no attempt to dictate the rules of actual warfare. They are concerned with the victims and not with the methods of fighting. The protection they give is for those who either by reason of being civilians, or because they are wounded and taken prisoner, are noncombatant and thus outside the struggle. The titles of each of the conventions indicate generally the categories of persons to whom each gives protection. Provisions vary with the classes of people protected, but, in a general way, it may be stated that amidst the brutality and destruction of war, they endeavor to bring a minimum of care and compassion in order that lives shall be saved, that suffering shall be mitigated, and that human dignity shall be preserved.

Common Features of the Conventions

In the first place, all the four conventions unanimously stipulate that *persons taking no active part in the hostilities, including members of armed forces who have laid down their arms and those placed hors de combat by sickness, wounds, detention, or any other cause, shall in all circumstances be treated humanely without any adverse distinction founded on race, color, religion or faith, sex, birth or wealth, or any other similar criteria.*

This constitutes minimum protection (which is increased to a certain extent in each of the conventions) and these terms clearly define the essential basis and the guiding spirit of the conventions.

Another obligation laid down in all of the conventions is that the sick and wounded should be collected and cared for.

The conventions also lay down a series of interdictions. Prohibition applies to *violence to life and persons, in particular murder of all kinds, mutilation, cruel treatment, torture, taking of hostages, outrages upon personal dignity, in particular humiliating and degrading treatment, the passing of sentences and the carrying out of executions without previous judgment pronounced by a regularly constituted court, affording all the judicial guarantees which are recognized as indispensable by civilized peoples.*

Another provision common to the four conventions specifies that the persons they protect may in no case relinquish their rights under the conventions. The object here is to cover against coercion, pressure, or undue influence. Thus, they are protected not only against any enemy power, but against themselves, against relinquishing those rights which would perhaps expose them, in certain cases, to the risk of being considered traitors or deserters.

Willful killing, torture, or inhuman treatment, including biological experiments, willfully causing great suffering or serious injury to body and health, are all condemned and involve suitable punishment. This far-reaching innovation was made by the 1949 conference. *It is no longer the states alone which will be held responsible for such offenses. Individuals committing or causing such offenses to be committed are equally responsible.*

A striking example of the revolution of legal conceptions in recent times is contained in another provision, introduced in 1949, which makes the convention applicable to *all cases of declared war or of any other declared conflict which may arise between two or more of the high contracting parties even if the state of war is not recognized by them,* and in all cases of occupation, *even if the said occupation meets with no armed resistance.* To quote only two examples, if these provisions had been in force during the last war, they would have been applicable as between Germany and Poland, even after the *Reich* had suppressed Poland and considered that a state of war no longer existed; the same would have applied throughout the occupation of Denmark.

The First Convention

Following this rapid review of some of the most important provisions common to the four conventions, it is necessary to notice in some detail the prominent features of each of the conventions.

The first three conventions directly concern the armed forces. The fourth, which relates to civilians, shall be omitted for consideration from this survey. The first convention expresses the moral sentiments of our times in the form of detailed and concrete obligations as to the treatment of the sick and wounded in times of war. The person or the soldier who has been wounded or who is sick and who in consequence gives up his arms and is placed *hors de combat* is inviolable. Article 12, which deals with the protection, treatment, and care of the wounded or sick, is the keystone of this convention. It states that:

> **Members of the armed forces and other persons mentioned in the following article who are wounded or sick shall be respected and protected in all circumstances.**
>
> **They shall be treated humanely and cared for by the party to the conflict in whose power they may be, without any adverse distinction founded on sex, race, nationality, religion, political opinions, or any other similar criteria. Any attempts upon their lives, or violence to their persons, shall be strictly prohibited; in particular, they shall not be murdered or exterminated, subjected to torture or to biological experiments; they shall not willfully be left without medical assistance and care, nor shall conditions exposing them to contagion or infection be created.**
>
> **Only urgent medical reasons will authorize priority in the order of treatment to be administered.**

Women shall be treated with all consideration due to their sex. The party to the conflict which is compelled to abandon wounded or sick to the enemy shall, as far as military considerations permit, leave with them a part of its medical personnel and material to assist in their care.

It recognizes further the neutrality of all hospitals and medical personnel, the use of the Red Cross emblem as the mark of that neutrality, and accepts the fact that the sick and wounded soldier is no longer an enemy and must be tended with care.

It will be noted that the article prohibits "adverse distinctions." It is natural and even desirable that a distinction, whatever it may be, should be permitted if it benefits the wounded enemy. Thus, for example, a native of a tropical country, and therefore more subject to chills than others, should be allowed extra blankets or be cared for in better heated buildings. Similarly the article states in paragraph 3 that "only urgent medical reasons will authorize priority in the order of treatment to be administered." Therefore, a surgeon would have the right to treat one of his own wounded before an enemy only if medical reasons so demand.

In addition, this convention also includes many other provisions which were found necessary. Among these are the immediate actions which need to be taken after a battle—the wounded and the dead must be located and removed to safety; the wounded must be given the care they need, and the dead must be buried; a record and the particulars of each victim, whether wounded or dead, must be sent to the "Information Bureau for Prisoners of War," which, upon the outbreak of a conflict, the belligerent powers must establish. The names and details of those wounded and dead who belong to the enemy then must be sent to the Central Agency for Prisoners of War and to the protecting power acting on behalf of the nation to which the wounded man belongs. Both the protecting power and the Central Agency then transmit the information to the country to which the victims belong.

The Second Convention

The second convention, known as the maritime convention, is an extension of the first Geneva convention (for the wounded and sick), the provisions of which it adapts to naval warfare. It has the same object and the same general arrangement as the first convention and protects the same class of persons, adding, however, a further category, the shipwrecked. Hospital ships and their personnel are treated on the same basis as medical establishments on land and protected in the same way. They shall in no case be attacked or captured, but shall at all times be protected and respected. Hospital ships used by Red Cross agencies will enjoy the same privileges.

The Third Convention

A prisoner of war is not, by virtue of his captivity, a criminal and may not be held in close confinement. The fact of his capture may not be kept secret, but should be made known at the earliest possible time to the outside world, in particular to his next of kin and the power on which he depends. Three ways are provided for this purpose: First, each detaining power is obliged to give the power on which the prisoner depends data concerning him immediately following his capture. Second, prisoners may directly inform the Central Agency for Prisoners of War of their address and state of health by means of a capture card. Third, prisoners of war are authorized from the moment of capture and within a maximum of a week to notify their families thereof.

This convention is applicable also to military internees in neutral countries. Provision is made for protection of war prisoners at all times in particular against violence, intimidation, insults, and public

curiosity. Women must be treated with all the regard due to their sex, and prisoners shall be entitled in all circumstances to respect for their persons and their honor; measures of reprisal against them are prohibited. The detaining power has the obligation of providing free maintenance, housing, food, clothing, and medical care.

No coercion or physical or mental torture may be inflicted on prisoners to secure information from them. They may not be deprived of their personal effects. The convention also provides for the election in each camp by secret ballot, every 6 months, of prisoners' representatives. These representatives are to enjoy certain prerogatives and given special facilities for communication with the detaining authorities, the protecting power, the national Red Cross agencies, and the International Committee of the Red Cross.

Prisoners of war also are entitled to receive individual or collective relief supplies and to send at least two letters and four cards each month.

These few provisions, selected from among many others, show the care with which the authors of the convention and signatory powers have formulated guarantees to ensure humane treatment of war prisoners in accordance with the Red Cross spirit.

The Red Cross Emblem

The Red Cross emblem has a definite place in the scheme of the conventions. Under Article 38 of the convention for the sick and wounded, the heraldic emblem of the red cross on a white background is retained as the emblem and distinctive sign of the medical services of armed forces. The next article specifies that this emblem shall be displayed on the buildings, flags, armlets, and on all equipment employed in the medical services, in short, on the persons and objects which it is the task of this convention to protect. It is of special interest to note that distinction is made between the use of the emblem for *protective* purposes and its use for *indicative* purposes. The aim of this rule is to surround the *protective* sign with the strictest guarantees, but at the same time to enable the national Red Cross agencies to use widely for *indicative* purposes an emblem known throughout the world.

How Is the Protection Carried Out?

The most complex aspect of the conventions refers to the means of carrying them out for the benefit of the victims of war. Declaration of rights is easy enough, but their application and enforcement is a different matter. Chief among the means designated for this purpose is the bringing in of the protecting power into the picture and by the statement of the responsibilities of the protecting powers as regards communication, negotiation, supervision, and the passage of information and family news. The protecting power represents the interests of a foreign government in a country with which that government is at war. Under the conventions, the protecting powers act as intermediaries between warring powers on certain matters connected with the welfare of war victims.

The Role of the Red Cross

The role of the Red Cross in this respect is no less important. While the protecting power acts on a governmental and diplomatic level, and has its responsibilities fixed, the functions of the Red Cross are wider and are purposely left open and broad to enable the fulfillment of its important traditional work of bringing relief and succour wherever possible. To mention a few examples, the special position of the International Committee of the Red Cross has been recognized in the matter of receiving all necessary facilities for visiting the prisoners and distributing relief supplies and material, from any

source, intended for religious, educational, or recreative purposes. Again, its delegates shall have permission to go to all places where prisoners of war may be, particularly to places of internment, imprisonment, and labor. They shall be able to interview the prisoners without witnesses either personally or through an interpreter. The responsibility to propose the creation of a Central Agency for Prisoners of War also rests with the International Committee of the Red Cross. Far more important is the provision enabling this committee, under certain conditions, to act as a substitute for protecting powers and to assume the humanitarian functions performed by protecting powers under the conventions.

It also has been clearly stated that the conventions constitute no obstacle to or restrictions of the humanitarian activities which the International Committee of the Red Cross may undertake for relief of victims of war.

The Armored Infantry Carrier

Digested by the MILITARY REVIEW from an article by Captain F. von Senger und Etterlin in "An Cosantoir" (Ireland) December 1951.

THROUGHOUT the world, and especially in the United States, great efforts are being made to achieve technical perfection in the field of special weapons. Nobody would expect a fighter pilot to fly against the enemy in a hastily converted civil aircraft. This, however, was and still is expected of the infantry elements in an armored division, for it amounts to this when they are provided with vehicles in the case of which the primary components are tractors, obsolete tanks, or, at best, utility vehicles.

A brief glance at the first-line combat vehicles of the armored infantry suffices to demonstrate this neglect of the primary arm of every army and every formation of mixed weapons.

The German Experience

As early as 1940, the Germans employed the "medium armored troop-carrying vehicle" in some battalions of their armored infantry regiments. This vehicle originated in the idea that it was necessary that the infantry in an armored division should be provided with armored transport vehicles in order that they, like the artillery, could follow hard on the heels of the armored spearheads effecting a break-through. An armored superstructure, designed to hold approximately 12 men, was installed on the chassis of a semi-tracked artillery tractor. The vehicle weighed about 10 tons, its armor plating was thin, the motive power inadequate. Its cross-country performance was poor. It was joined later by the "light armored troop-carrying vehicle," with which, in particular, the infantry companies of the armored reconnaissance units were provided. This vehicle could carry six men and its motive power was twice that of the larger vehicle. It was, therefore, faster and more effective in cross-country performance, but it showed certain technical faults as the chassis had originally been built for tractors only.

In spite of its defects, it could, when in action, be very quickly converted from a transport to a first-line combat vehicle. The armored infantry developed their own tactics for motorized combat and, with increasing frequency, played an effective part in tank warfare. The heavy weapons brought up at the beginning were mounted

on vehicles so that they would be ready for action, as a result of which the chassis was, of course, even more overloaded. Armored infantry units frequently performed tasks which would have been too much for tanks or infantry on foot.

The American Experience

The Americans provided their armored infantry with the *M2* half-track vehicle still in general use today. This was somewhat more strongly constructed than the German vehicle, but it was unsatisfactorily shaped with straight side-walls and its rubber-tracked chassis was not in keeping with the latest technical developments even in World War II. It was just as unable to cope with the Russian mud as were the German types.

After the war, the Americans used the "armored utility vehicle," a heavy vehicle originally designed for the self-propelled artillery. It is big and unwieldy, has a vertical tank-hull, and is more like a furniture van than a modern first-line combat vehicle. Like the *M2*, it can carry up to 12 infantrymen.

The British Experience

The British, finally, provided elements of their motorized armored battalions with the Bren carrier. Its track assembly is not suitable for high speed when traveling on roads and its armor plating is very thin.

Essential Characteristics

Against all these emergency solutions, we must demand that the armored infantry be provided with a first-line combat vehicle.

What must such a vehicle be like if it is to be equal to all the demands which combat conditions make on armored infantry? Here are some essential characteristics:

1. The armored infantry carrier must be *fast*. Only speed gives superiority against a more strongly armored or better equipped enemy. When traveling by road, armored infantry elements must not be slower than wheeled vehicles. In cross-country operations the vehicle must have good acceleration and be capable of climbing steep gradients in order to overcome obstacles and evade defensive fire.

These demands can be met only by a vehicle with a motive power of about 30 horsepower for each ton. An 8-wheeled chassis, of course, combines the advantage of speed in road travel with adequate cross-country performance, but this advantage can be obtained only at the price of technical complication and a high superstructure (because of the nature of the steering and propulsion units required in the case of an 8-wheeled vehicle). For this reason, a fully tracked vehicle, the track of which is padded with rubber and automatically lubricated, is preferable. Large bogie-wheels of an uncomplicated type run faster and more freely than small rollers.

2. The armored infantry carrier must be suitable for *cross-country* work. In the East, this means, in particular, the capacity to negotiate muddy terrain. Where a horse would sink up to its belly in mud, the carrier must be able to move forward without difficulty. It must be able to surmount gradients of 70 degrees.

Besides strong motive power and small bogie-wheels of about 36 inches in diameter, by which a belly clearance of about 18 inches is attained, wide tracks are a prerequisite to good cross-country performance. Only absolutely smooth wheels prevent frozen mud from settling like concrete in the track assembly. Therefore, pairs of correlated rollers are useless.

3. The vehicle must afford *protection* against all types of infantry weapons, fragmentation, radio-activity, and, at a certain distance, the pressure and heat waves of atomic explosions. In spite of the disadvantages which it creates in the case of close combat, the vehicle must be closed

at the top. For the purpose of strengthening the armor, all the external planes must be inclined at an angle of 40 degrees.

4. The armored infantry carrier must be *simply* constructed. It must be able to take all the weapons of a battalion for the purpose of mechanized combat, although these could be equally well employed in infantry combat. The development of recoilless weapons for support and antitank combat is an additional aid in meeting this requirement. Very light and low revolving turrets afford them sufficient storage space.

5. The armored infantry carrier must accommodate at least *one* infantry section.

Here, we encounter the most difficult problem of the approximation of technical and tactical requirements. There can be no doubt that the usual group of 10 to 12 men is too big. It cannot be supervised by one commander and a vehicle designed for it would be too much to attempt. A group of five men is too small. It cannot carry out any pincers operations. Two light machine guns represent the minimum armament required. These require four men. The section commander and two riflemen, or substitute personnel, bring the total up to seven men. In the light of experience, this would be the ideal strength for a section, and it could be accommodated in a 10-ton vehicle.

Summary

Only a vehicle which meets these requirements will enable the armored infantry to execute their diverse tasks in a satisfactory manner. They thus become the fastest arm in the armored division with the most efficient cross-country performance. They will carry on the tradition of the battle cavalry as well as that of the light infantry. They must be capable of operating in every type of terrain and suitable for all forms of combat. They also must be capable of breaking the deadlock resulting from the new type of "trench warfare" into which the combat of tank against tank has degenerated. They will be able to take even strongly defended positions in lightning operations and penetrate deeply into enemy territory before reserves can be brought up. The enemy will no longer be in a position to avoid encirclement, because the operational speed of such units is greater than that of heavy tanks or wheeled vehicles which are confined to roads. In close cooperation with the air force, they will be able to dispense with the clumsy and slow supporting weapons to a great extent. They will not form a special arm necessitating high expenditure or inordinate attention, but rather a modern form of that infantry arm which is decisive in every battle and consists of individual combatants.

The combat effectiveness of the Army, especially when funds are limited, depends upon a delicate balance between personnel and equipment.

General J. Lawton Collins

Mobile Air Forces

Digested by the MILITARY REVIEW from an article by Air Marshal Sir Thomas Elmhirst in the "Journal of the Royal United Service Institution" (Great Britain) August 1951.

AIR forces in war, defending or attacking from a secure or island base, operate at their highest efficiency when operating from permanent, fully equipped airfields. However, the changing fortunes of a long war may well leave such a base high and dry and out of range of attackers, and a defending air force thus becomes of little use unless it is moved nearer to the front. The chance of finding well-equipped airfields close behind a battle front is possible, but by no means likely, and an air force that is to operate in support of an army in the field may well have to advance or retire, making airfields in accordance with army movements, and rely on its own resources for making such airfields and for the maintenance and supply of its aircraft.

Such an air force must be mobile, that is, its ground organization must be as transportable as that of a traveling circus. In fact, a field air force has to be more mobile than a traveling circus, because the latter does not function while on the move, while aircraft must continue to operate even when the ground parties and equipment are on the road.

A field air force that is not completely mobile will suffer from one or more of three main disabilities:

First, a rapid advance of the army—and such advances have been as much as 50 to 100 miles a day—may well leave the original air strips or airfields from which short-range aircraft were operating so far to the rear that aircraft may not be able to provide support over the line. Even if they are barely able to do so, the support they can give is limited both in time spent over the battlefield and in depth of penetration beyond. Again, the weight of missiles the aircraft can carry will be much less if long-range tanks have to be installed, and the long distance to and from the front will cut down the number of sorties that can be flown each day, thus entailing a lot of useless "engine hours."

Second, an immobile air force will have its forward airfield overrun if enemy columns break through and, although aircraft may be able to fly to the rear, valuable men and matériel will be captured which, until they are replaced, will make the air force useless.

Third, when an army headquarters and an air force headquarters are co-operating in the field, they must be sited and moved together. The army headquarters must, of necessity, site itself and move forward and backward in accordance with the moves of its subordinate formations. The air force headquarters must conform to the moves of the army headquarters and is, therefore, likely to be within, say, 50 miles of the front line. However, if an air force headquarters is to control its subordinate formations of wings and squadrons properly, it must do so by telephone and, accordingly, must have them located reasonably close. If wings and squadrons cannot move and be sited to conform to the moves of their own headquarters, operations will suffer.

Wartime Experiences

The allied campaign in Tunisia, in February 1943, is an example of the unfortunate consequences resulting from the poor mobility of the air forces engaged. The Royal Air Force contingent supporting the British First Army was located too far back (at Bone) where, although the aircraft could defend the "forward base" from air attack, they were unable

to operate far enough forward to ensure air support to the troops. Again, the United States Air Forces on the right of the line were, although not fully mobile, located too far forward. Consequently, when German armor made a rapid advance through the Kasserine Pass, airfields were overrun and men and matériel were captured, because the units were not trained for quick moves, nor had they sufficient vehicles at hand to transport themselves and their equipment to the next set of prepared airfields in the rear.

The Royal Air Force learned its mobility lessons in the North African campaigns of 1940, 1941, and 1942. It learned how to move its wings and squadrons quickly from one air strip to another in conformity with moves of the army. It learned how to keep the squadron aircraft operating when the ground parties were on the road, and how to ensure that squadrons were kept up to strength with serviceable aircraft when they were located a great distance from a supply base. Likewise, it learned how to ensure a steady flow of required matériel, and how to construct air strips quickly in the desert. These lessons were learned only after much trial and error—generally the result of bitter experience. It is well that they should not be forgotten. However, they will be forgotten unless such units are organized, equipped, and trained for the various mobile duties.

Organizational Requirements

In the main, the mobility of a field air force will depend on a correct organization, that is, having the right type and number of units supporting the wings and squadrons, and a sufficient number of vehicles, tents, and other equipment. Air transport can help, if available in numbers and if local air superiority allows its use, but it is not the final answer. Heavy cranes, refueling vehicles, and special signal vehicles for the control of fighters in the air are not easily or readily transportable by air.

The following paragraphs give a short summary of the organization required to ensure the mobility of a field air force.

Typical Organization

The fighting unit of the Royal Air Force in the field is the wing, comprising two, three, or four squadrons equipped with the same type of aircraft. Fighter-bomber squadrons usually have an establishment of some 16 aircraft each, and a wing thus will consist of some 50 to 60 aircraft. A typical field air force supporting a two-corps army might well consist of:

A *group headquarters*, with its subsidiary group control unit. (The latter is necessary for the hour-to-hour control of aircraft in the air and for the control of the necessary early warning system and anti-aircraft defense of airfields.) Three, four, or more *fighter-bomber wings*, a *reconnaissance wing*, and, perhaps, one or two *light bomber wings*, if these are not under the immediate control of the superior air commander, and a *communication squadron* for the rapid conveyance of staff officers, both army and air. In addition, there must be the necessary units for air defense of airfields, perhaps a *light anti-aircraft squadron* (from the RAF Regiment) for each airfield, an *air formation signals unit* for laying telephone lines between group headquarters, wings, and squadrons, and an *airfield construction unit*.

Over and above the operational units mentioned above, certain administrative units are essential to ensure that the squadrons are kept up to strength in serviceable aircraft, personnel, and vehicles, and are furnished the necessary supplies and equipment. The following administrative or service units all play their part, and a group in the field cannot function efficiently without them:

Air stores park.—One should suffice for

four wings, holding the necessary aircraft spares and camp equipment stores.

Fuel and ammunition park.—One should suffice. It should hold, in addition to aircraft fuel and explosives, oxygen-making apparatus, paraffin, and motor transport fuel (if the latter is not supplied by the army).

Advanced repair and salvage unit.—One of these should be provided for every two wings. The unit should be located on a wing headquarters airfield with a detachment on the airfield where the second wing is located. It carries out repairs to wing aircraft where more than 48 hours' work is entailed. It does not carry out repairs that will entail more than a week's work, but returns such aircraft to base. It effects the salvage of all crashed aircraft of the wings that it looks after.

Motor transport repair and salvage unit.—One should suffice. The unit works to the same principles as an aircraft repair and salvage unit. It should hold spare parts for motor transport and a small immediate reserve of vehicles.

Signals repair unit.—A small unit to carry out all repairs of signal equipment beyond the capacity of wings, and to hold signal supplies.

Field hospital.—A 30- to 40-bed mobile hospital.

Supply and transport column.—A unit of at least 200 3-ton vehicles for transporting fuel and explosives from roadheads or railheads to the fuel and ammunition park, also for the prestocking of forward airfields and for the moving forward (or to the rear), as necessary, of the fuel and ammunition stocks.

Group support unit.—A unit located in the back areas out of range of enemy fighters to hold an immediate reserve of three aircraft and three pilots for each squadron of the group it is supporting, and a "flight" of aircraft in which reserve pilots can maintain themselves in practice.

All these units need to be organized and established to contain the correct number of personnel and facilities, and the required amount of matériel, to meet the entire requirements of a group in combat for 1 month. There may be, however, two exceptions to the rule that all units of a group, both combat and supporting, must hold sufficient vehicles to be able to transport themselves at a few hours' notice. Light bomber wings and group support units can and should be located far enough back to be out of the immediate combat area. As such, they should have good warning of the need to move and be aided in their movements forward or to the rear by vehicles lent to them temporarily.

Vehicles

While speaking of vehicles, it is well to remember that quite a few will be required, and that they are expensive. A wing on the move with its own 2 days' supply of ammunition and fuel will need at least 100. Vehicles are often idle, but, if not present and available, ground parties may be captured, or an air force may find itself useless in an operation because it is located too far behind the front lines. Vehicles, in the main, are the 3½-ton commercial carriers. Towed trailers should not be used. Vehicles for special purposes—such as signal, kitchen, and supply vehicles—should be so arranged that they can do their particular jobs or issue supplies without having to be unloaded. A few large gasoline tankers are an asset, and so are 10-ton vehicles, for moving fuel and ammunition, if the roads will carry them.

Two other organizational requirements for a mobile air force also must be mentioned. First, the necessity for a split headquarters, and, second, the method of ensuring that wings and squadrons can carry out their daily operational sorties while their ground parties are moving on the roads from one airfield to another.

The Split Headquarters

Experience in the last war proved that the headquarters of a field air force must, at times, be able to control its units with the headquarters split into two parts, one located forward with the army headquarters near the front line, and the other located 100 to 200 miles to the rear on the line of communications to the base. No one likes a split headquarters. It makes the support and control of units more difficult and hinders the close co-operation so necessary between all headquarters staffs. However, a split headquarters was found necessary in both the British Army and the Royal Air Force in all the quick-moving campaigns in North Africa, Sicily, Southern Italy, and Northwest Europe.

The complete headquarters of a group or tactical air force is a large unit. In fast-moving warfare, it is essential that the air commander and his operational staff are located alongside the army commander and his operational staff. Moreover, it is likewise essential that the latter are located within 30 to 40 miles of the front-line troops. If an entire army and an air force headquarters were together, they would need a large tented encampment or a town of some size to accommodate them. In addition, such an unwieldy outfit would be bound to be spotted by the enemy and become a target for day and night air bombardment.

Again, in fast-moving warfare, a headquarters might, of necessity, move once or twice a week, thus disorganizing the entire staff and preventing the administrative staff from keeping in close communication with the base and ensuring the smooth flow of the group's supplies. Experience in the last war showed, therefore, that unless the front line was static, and looked likely to remain so for weeks ahead, it was advisable to split the headquarters into a small forward party, consisting of the commander, his operational staff, and the chief of administration—the latter with only three or four staff officers—and a rear party consisting of the remainder of the staff and located, perhaps, 100 miles behind, where they could carry out their work in quiet conditions, with good communications with their base or next higher headquarters. The rear headquarters probably would move only once for every three or four moves made by the forward headquarters. Good communications are, of course, essential between the two parts of the headquarters, with telephones where and when possible in addition to radio and a daily air courier service.

Retaining Fighting Capacity

The other essential requirement of a mobile air force is the need for wings and squadrons to retain their fighting capacity, even when their ground parties are on the move between airfields. This is purely a matter of organization and an additional allocation of men and vehicles. The wing must have a standing operating procedure, whereby, at a moment's notice, it can divide itself into two parties and send one moving down the road while the other maintains the aircraft carrying out their normal daily operational sorties. The two parties can live apart for some 36 hours, but beyond that period the party maintaining the aircraft will, through overwork, become tired and the rate of sorties for the wing will, and must, drop. The forward or "A" party, consisting of about half the mechanics with a rather larger proportion of communications and anti-aircraft personnel, moves off by road to the new airfield. The remaining "B" party works overtime to keep the aircraft in the air. On arrival at the new site, "A" party ensures that the airfield is ready for planes to land, erects the necessary communications equipment, prepares the anti-aircraft defense, and sees that the airfield is stocked with fuel and ammunition. When this is accomplished, it notifies "B" party that it is ready to receive aircraft.

The wing aircraft, at the conclusion of the sortie in which they are engaged, then land at the new airfield and "B" party packs up the old camp and rejoins "A" party as soon as possible. Of course, "A" party has to work double time to keep the aircraft in the air while "B" party is on the road. If air transport is available, and air superiority allows its use, then some time can be saved by moving a portion of the "B" party by air. However, heavy equipment, tents, refueling vehicles, cranes, and special signal vehicles will, of necessity, have to move by road.

Summary

In peacetime, all air forces are inclined to become static. Squadrons may move from one well-equipped, permanent airfield to another, and little more is expected of them. However, in wartime, it is certain that a fair proportion of an air force will, of necessity, be called upon to operate with an army and to operate from hastily prepared air strips rolled out of virgin soil in an unexpected war area.

To be able to meet such wartime requirements is an easy matter if air forces are organized, equipped, and trained for such operations during peacetime. If units are not trained for such tasks, there will be confusion from the start, and the combat operations will suffer.

Are We Able to Accomplish Our Mission?

Translated and digested by the MILITARY REVIEW from an article in "Militaer Orientering" (Norway) 10 October 1951.

AFTER a thorough analysis of a number of points relative to foreign policy and strategy, the Defense Commission has established that the Army's mission is to cooperate, in defense, against a possible invasion of our vital areas.

The Commission's answer as to how this mission is to be accomplished is evident from its report, which states, in part:

"If enemy forces obtain a foothold on Norwegian soil, the Army must offer as active and, at the same time, as tenacious a defense as possible, so that stubborn resistance will be offered a considerably superior enemy—and, of course, first of all, in the defense of our strategically most vital areas."

To make this possible, the Commission proposed, among other things, a reorganization of the Army into 12 combined regiments. These combined regiments would form part of the defense forces, which are to be organized into field, local defense, and home defense branches.

It is natural to conclude that when the Commission makes a concrete proposal that it is its honest opinion, and that if such a proposal is acted upon, it is the Commission's firm conviction that Norway will be able to defend herself as actively, tenaciously, and stubbornly as possible.

When one reads other parts of the Commission's report, he receives the distinct impression that its proposal represents the maximum of what the Nation is capable of providing from the purely economic point of view.

The danger exists that when Parliament takes up the Commission's report for consideration it will appraise it from the same point of view, and, perhaps, carry out the proposed reorganization of the Army. However, it is by no means certain that this is the reorganization that is necessary before the Army is able to defend our country in the way that the Commission has indicated, or in the way that it must be done.

Examining the Directive

Let us examine various points in the Defense Commission's directive and see whether the proposed reorganization of the Army will meet the needs.

According to the directive, "the Army must offer as active and, at the same time, as tenacious a defense as possible. . . ."

Tenacity in defense will be contingent on the relative strength of our forces and on the organization we provide for our tactical defense. Our only possible assailant is the Soviet Union, and one of the most prominent features of the Red Army's attack tactics is the reckless engagement of large units (divisions and higher formations) supported by heavy artillery, tanks, and aircraft.

In order to be able to meet such an attack, it is proposed, in all seriousness, that we organize small "clenched fists" in the form of combined regiments. Such units would comprise about one-third of our available defense forces, and the other two-thirds would be organized for home defense and local defense missions. In other words, it is proposed that we send troops, whose organization calls for them being equipped principally with rifles, machine guns, and mortars, to battle attacking forces which would be equipped with heavy artillery, tanks, and aircraft.

Moreover, what is worse, as evidenced from their designations, our troops would be bound to the home and local defense areas.

Although our forces would be small in numbers, we still would want them to give a good account of themselves in battle. However, this seems unlikely, for the proposed number of combined regiments would not permit a concentration of forces. In addition, the supporting weapons of the combined regiments would be of such a caliber that they would be unable to vie with the heavier pieces of the Soviets.

With such an organization as the Defense Commission has proposed, we shall be completely inferior and helpless in case of an invasion of our country.

It is possible that the proposed Army organization would be able to operate "actively" against the flanks of invading forces, but the regrettable thing about it is that because of size of the proposed units, these operations would have to assume the form of guerrilla actions.

It is worth while to turn one's attention to Finland to learn what she did for her sons before they were sent out to meet the numerically superior enemy. You may rest assured that they had other weapons than those with which our home and local defense forces would be equipped. In addition, the Finns were organized into field units which permitted an "active" and "tenacious" defense such as the Defense Commission talks about.

Finland needed some 16 divisions and 2 independent brigades to hold her own, and we are talking about 12 combined regiments plus home and local defense forces. Twelve divisions would be more like it!

Finland was obliged to fight alone. However, with its 16 divisions, it succeeded in halting the Soviets in a year and a half. Norway's situation with respect to the Soviet Union is far more favorable than was Finland's. Our terrain is also far more favorable—and it should not be unreasonable to assume that if the Finns required 16 divisions, we could perhaps accomplish the same thing in our country with 10 divisions.

Today, some are of the opinion that invasion forces can be isolated with home or local defense forces, and destroyed with combined regiments. It must have been a similar line of reasoning to which the Defense Commission fell prey when it drew up its plan for the reorganization of the Army.

The consequence is that the efforts toward making us ready for any emergency have, in fact, made us weak.

If we are to have any hope of defending ourselves effectively, we must organize forces capable of annihilating an invasion force of the size of an American army corps—that is, from three to five divisions.

If we organize 12 divisions instead of 12 combined regiments this might be possible.

Seeking an Answer

Are 12 divisions a possibility, or is this only wishful thinking? An analysis of the following points will give us the answer to this question:

1. Do we have the necessary manpower?
2. Have we or can we provide the officer corps for such forces?
3. Have we or can we provide the necessary equipment?
4. Have we the means for constructing the depots, garrisons, shops, and training centers that would be required?
5. How long a time will the Army have available for its expansion?

We have the manpower. Such personnel are not all trained, but if we solve the officer problem, and if Parliament grants the necessary means, training is merely a question of time.

Equipment we can obtain from the United States, if we prove that we have solved the difficulties connected with points 2 and 4 above.

There then remains the greater problems:

1. Will Parliament pass the necessary enactments to provide for the recruiting of a larger officer corps?
2. Will Parliament vote the necessary means?
3. Have we enough time left to accomplish this?

It is clear to everyone that if we are to be able to carry out such an expansion of our Army, a complete change of mental attitude is necessary.

We must resolve to look on our defense as a necessity, and go in for it with enthusiasm—not merely tolerate it.

We will have to tighten our belts, eat less, and work harder. Then, 12 divisions can be a reality.

Other nations have solved these problems before, and there doubtlessly will be nations which will have to solve them in the future. It is now our turn to solve these problems.

It is my earnest conviction that the United States and the rest of the free world possess sufficient manpower, sufficient natural resources, sufficient scientific genius, and sufficient industrial capacity to make the free world impregnable to attack. I believe that no power on earth can defeat us if we properly plan and prepare. The danger is clear; it has been demonstrated in Korea. But if our preparation is determined and orderly, I feel certain that we can maintain our freedom and our way of life. I believe that we are making great progress today, and with the continued co-operation of science, industry, and the armed forces—which I am sure we will get—we will continue to do so.

General J. Lawton Collins

BOOKS OF INTEREST TO THE MILITARY READER

WAR FOR THE WORLD. By Fletcher Pratt. 364 Pages. Yale University Press, New Haven, Conn. $5.00.

BY COL GEORGE C. REINHARDT, *CE*

This volume's subtitle, "A Chronicle of Our Fighting Forces in World War II," is more appropriate than its title. Little or nothing is said of the political, economic, and psychological phases that we now realize are a part of war. Even the strategy that brought on the many battles which comprise the book's main topic is barely mentioned. But, if Mr. Pratt really intended a tactical chronicle, he has succeeded admirably, compressing within a few attention-gripping pages sufficient military history for many times the space allowed.

No narrative taking so vast an epic for its subject could be without flaw any more than history suitable for scholarly research can be written so soon after highly controversial events. The author's haste is reflected by the bias and incompleteness of some of his sources. Armies' strengths are invariably appraised in round numbers of "divisions" regardless of the variable size and effectiveness of that extremely vague unit of measure. The carrier arm of Japan's navy is confusingly "wiped out" several times, beginning with Midway. The American propensity for claiming records is mildly annoying such as the "first air-supplied troop movement in history" to capture Kokoda pass in the Owen Stanley (New Guinea) Mountains which ignores Crete where the movement itself as well as supplies came by air.

Probably the weakest feature of the book is the author's omniscient pronouncements on the *reasons* for the victories he ably recounts. Particularly will his summing up infuriate the infantryman: ". . . neither the Japanese nor the German . . . was . . . impressed by the performance [of United States troops] as infantry . . . the infantry soldier was no longer arbiter of the battlefield . . ." hence both our foes were defeated because they thought he was and we (presumably) did not. Yet, repeatedly, Mr. Pratt attributes our air success to the superior skill and training of our pilots.

To continue in this vein would be unfair. To the extent that *War for the World* sticks to chronicling that conflict's battles, it is superior to any work of twice the size discovered to date. Robert Galvin's maps, located appropriately, are highly informative. The reader's only regret for the hours he will devote to this book will be that Mr. Pratt did not adhere closer to his "chronicles."

ONE GREAT PRISON. By Helmut M. Fehling. Translated by Charles R. Joy. 172 Pages. The Beacon Press, Boston, Mass. $2.75.

The account of a German sergeant-major's 6 years as a prisoner of war in the USSR.

AIR WAR AND EMOTIONAL STRESS. By Irving L. Janis. 280 Pages. McGraw-Hill Book Company, New York. $5.00.

Psychological studies of bombing and civilian defense.

AIR TRANSPORTATION MANAGEMENT. By Joseph L. Nicholson. 446 Pages. John Wiley & Sons, Inc., New York. $6.50.

By Lt Col Michael J. Reichel, *TC*

"Air travel is more than another form of transportation; it opens the door to a new world."

Air transportation means many things to many people; even among airlines there is no agreement, and differences are only less violent among people in the same airline. To one airline executive it means mass transportation; to another officer of the same company, luxury travel. To the investor it means infrequent dividends; to millions of Americans it is an experience yet to be realized. To the military planner it is a tool to employ in the waging of war, and the commercial air transportation industry becomes a major factor in his planning to the extent that it can be converted to military purposes.

The author's excellent appraisal of the growth, practices, and policies of the air transportation industry will intrigue the reader who is interested in the subject. While much of the book cannot be considered palatable reading for the general reader, because of the mass of statistics, facts, and figures, it provides a wealth of factual information for the prospective investor, passenger, shipper, employment seeker, and researcher. Each of the chapters is an entity covering all aspects of the subject from "The Significance of Air Transportation" to "Economic Effects of Regulated and Subsidized Competition."

As the military reader peruses the pages of the book, he cannot but marvel at the growth of the infant who, by the end of 1918, was barely able to complete one-third of its scheduled mail trips between New York and Washington in 4 hours' flying time, and the giant who, since 1943, has carried more people overseas to and from the United States than has the surface transportation of the world, and in a fraction of the time required by surface shipping.

Neither historical nor descriptive, the book should be used only as a frame of reference for analyzing this dynamic industry. For this purpose, *Air Transportation Management* is an outstanding work.

SCIENTISTS AT WAR. By Wilfrid Eggleston. 291 Pages. Illustrated. Oxford University Press, New York. $3.50.

By Col Roy W. Muth, *CmlC*

It has been said that recognition and acknowledgment play an important part in the motivation of scientists. *Scientists at War* recognizes and acknowledges the accomplishments of Canada and Canadian scientists both nationally and individually.

This book recounts the developments and counterdevelopments in weapons during World War II, highlighting the part played therein by Canada. It goes into considerable detail on radar, the proximity fuze, cyclonite (RDX), and atomic energy and then covers developments for land, sea, and air warfare with mention of work in materials, food, and medicine. Most interesting is the account of German sea mine development and the countermeasures taken by the allies to overcome this serious threat to their successful prosecution of the war.

Another interesting project involved the conception of huge aircraft carriers, the hulls of which were to be fashioned from ice-floes. Although the expense halted the work on these floating landing fields, the development of the project makes fascinating reading.

The leaders of our present collective security pacts might find help in their problems of co-operation in *Scientists at War*. The scientific problems of the allies were attacked on the basis of immediate urgency, but long-range objectives were agreed upon. These still are being pursued in the postwar era.

THE PRIVATE LIFE OF GEORGE WASHINGTON. By Francis R. Bellamy. 409 Pages. Thomas Y. Crowell Co., New York. $5.00.

By IVAN J. BIRRER, *Ph.D.*

This readable volume deals primarily with the private, unofficial George Washington. The book's chief frame of reference is how Washington's environment looked to Washington, rather than how Washington appeared to his environment.

Replete with Washington's original writings, the volume takes the reader quickly through George's early life and his experience with Braddock. Then, in some detail, it recounts his term as Commander in Chief to conclude with his years as first President. Throughout, the reader is given enough detail to ensure proper perspective—but not so much as to detract from the main theme—George Washington, the man.

All readers will necessarily have their estimate of Washington raised substantially. The military reader will be even more impressed. How Washington could carry on military operations in the absence of real and effective support from any government and with practically no logistics support seems a miracle to one accustomed to modern armies.

The magnitude of Washington's task is best illustrated by quotations from his writings. In a letter to the Continental Congress, during the winter at Valley Forge, he said:

> Unless some great and capital change suddenly takes place in that line, this army must inevitably be reduced to one or other of these three things—starve—dissolve—or disperse, in order to obtain subsistence. . . .

To General Cadwalader, only a *few months* before Yorktown, he wrote:

> . . . I see nothing before us but accumulating distress.—We have been half our time without provision & are like to continue so.—We have no Magazines, nor Money to form them.—And in a little time we shall have no Men, if we had Money to pay them.—We have lived upon expedients until we can live no longer.—In a word, the history of the War is a history of false hopes and temporary devices, instead of system & ecconomy.

THEY FOUGHT WITH WHAT THEY HAD. By Walter D. Edmonds. 504 Pages. Little, Brown and Co., Boston, Mass. $5.00.

By MAJ ROBERT L. LASH, *USAF*

Walter D. Edmonds, the author of such well-written novels as *Drums Along the Mohawk* and *Chad Hanna*, was authorized by the Air Force, early in World War II, to write the story of the Army Air Forces in the Southwest Pacific for the period 1941-42.

The result is a readable, well-documented history of the early phases of the air battle against the Japanese. The book begins with the arrival in the Philippines of the first of the *Flying Fortresses* in the fall of 1941. From the start, it was evident that the lack of facilities, equipment, and training of personnel made the effective use of the few aircraft available almost impossible.

The student of military history can place himself in the position of the "Monday morning quarterback" by outlining the obvious mistakes that were made in those early days—obvious because of experience gained later in the war.

The lack of intelligence, communications, air defense, and of unified command, together with the piecemeal attacks that were made, are shocking evidences of our lack of preparation.

This is *the* story. No accounts of glamour boys fill up the chapters which relate of the courage, fear, hard work, frustration, and, often, death, the lot of most of the men concerned. It is not a pretty story, but *They Fought With What They Had* is well worth reading.

BRITISH SCIENTISTS. By E. J. Holmyard. 88 Pages. The Philosophical Library, Inc., New York. $2.75.

A short biographical survey of the better-known British scientists, covering the period from the thirteenth to the twentieth century, with a listing of their scientific findings.